

MIX

PROFESSIONAL RECORDING · SOUND AND MUSIC PRODUCTION

AES NEW PRODUCTS

- Genelec 1029A
- dbx Blue Series
- Tascam DA-38
- Hundreds More!

A Guide to VINTAGE GEAR

LOCATION SOUND FOR EVITA



*****5-DIGIT 90290
 MX90290GANDEN003 P-18 P-19
 MARK GANDER
 21000 WINFIELD RD
 TOPANGA CA 90290-3636



CREATE YOUR SPACE



The Alesis MidiVerb® 4 is the best solution for full-featured, completely programmable reverb and multieffects. Its algorithms for reverb, chorus, flange, delay, rotary speaker simulation and special effects are beyond compare. It offers up to three great-sounding effects at once, and lets you change programs and parameters in real time using MIDI controllers like foot pedals or keyboards. Its incredible sonic fidelity comes from 18-bit digital converters, a 24-bit internal DSP and a professional 48kHz sampling rate.

But the key to MidiVerb 4's power is that every program offers dozens of detailed parameters that let you create the perfect effect for every environment. And since it's also easy to use and surprisingly affordable, MidiVerb 4 is the obvious choice for musicians and engineers looking to expand their effects processing horizons.

Start creating your space with the MidiVerb 4. It's at your Authorized Alesis Dealer now.

For more information on the MidiVerb 4, visit your Authorized Alesis Dealer or call 800-5-ALESIS.

©Alesis and MidiVerb 4 are registered trademarks of Alesis Corporation.

Alesis Corporation 3630 Holdrege Avenue Los Angeles CA 90016 800-5-ALESIS alecorp@alesis1.usa.com

ALESIS

For some people, only one console is good enough.



Nippon Columbia, Tokyo

"It was important that the new console met our sound quality requirements and provided enhanced operational use. The SL 9000 easily did so."

Mr Yamamoto, General Manager, Recording & Engineering Department



Mega West, Paris

"The SL 9000 is the only console able to deliver our high standards, and sounds 'magnifique'."

Thierry Rogen, Owner



Masterfonics, Nashville

"We needed a 'no compromise' console in 'The Tracking Room' to achieve our ambitious goals. The SL 9000 became the only logical choice."

Glenn Meadows, Owner



Studio Guillaume Tell, Paris

"The SL 9000 delivers excellent sonic quality and impressive automation features, yet is familiar to most users."

Roland Guillotel, Owner



Phil Ramone & Brian Setzer

"Those of us who have used the SSL 4000, 6000 and 8000 console know what we're looking for. The SL 9000 sounds great, and that's the key."

Phil Ramone, Producer



Kevin Mills & Dave Bianco, Larrabee North, LA

"The SL 9000 sounds fantastic! Obviously there are a lot of console manufacturers out there - but for my money it's 100% SSL."

Kevin Mills, Owner



Ocean Way, Hollywood

"Great low end impact, effortless open top end and exceptional overall clarity are not qualities I normally associate with modern consoles. The SL 9000 exhibits all these attributes."

Allen Sides, Owner



Gary Paczosa, Dolly Parton & Steve Buckingham

"We found the SL 9000 to be a superb complement to the digital recording process. It uses state-of-the-art technology to create that wonderful sound associated with classic consoles."

Steve Buckingham, Producer

SEE US AT AES BOOTH # 223



SL 9000

Solid State Logic

International Headquarters: Begbroke, Oxford OX5 1RU, England · Tel: +44 (1865) 842300 · Fax: +44 (1865) 842118

Paris +33 (1) 34 60 46 66 · Milan +39 (2) 262 24956 · Tokyo +81 (3) 54 74 11 44 · New York +1 (212) 315 1111 · Los Angeles +1 (213) 463 4444 · Toronto +1 (416) 431 9131 · Singapore +65 285 9300

<http://www.solid-state-logic.com>

World Radio History

The Dynamic Duo

DON'T TAKE OUR WORD FOR IT

Tannoy's PBM 8 LM – we'll let the experts speak for us!

I was impressed by the whole package, both its looks and sound. Not only is working with these speakers a real pleasure, but guess what – they don't sound very different from their twice the price competitor. When I found out the price for the Tannoy PBM 8 LM's, my socks blew clear across the room!

*Peter Horvath,
Professional Sound Magazine*

There was something else that really appealed to me with these babies: the low end. I mean real honest to God low frequencies. PBM 8 LM's are absolutely perfect for the major project studio that can afford only one set of monitors.

Bobby Owsinski – EQ Magazine

Tannoy's PBM 8 LM's offer superior balance and frequency response at all monitoring levels, amazing low end, and excellent stereo imaging. The dark Tyner-esque midrange from the acoustic piano was so accurately reproduced and the highs from the cymbals and vibes were so clear that I was almost convinced that the "quartet" was performing in my home studio.

*Steve Wilke,
Electronic Musician*

Tannoy is one of the most respected manufacturers of studio monitors. After reviewing the PBM 8 LM nearfield monitor I can see why. The monitor is remarkably neutral and has a wide range, and its resolution of time and space is superb. The Tannoy PBM 8 LM is a winner as a professional monitor. With its first rate amp and neutral response, you can trust it to tell you the truth about your mixes.

*Bruce and Jenny Bartlett,
Pro Audio Review*



Though the Tannoy's bass response was very beefy all the way down to 50Hz, it was not overbearing in musical contexts. Its sound was very smooth across the entire spectrum. The midrange exhibited fantastic detail. We felt the Tannoys were the best of any speakers at reproducing solo piano, as a result of this definition in the midrange. Listening to these monitors gave us a feeling of being in the same room as the musicians.

Keyboard Magazine

I found the horizontal dispersion to be quite a bit wider than most. On and off axis imaging is well above average. This is where the PBM 8 LM's shine – they're absolutely trustworthy at all volume levels, and certainly among the best speakers we've ever heard in their price range.

Nick Batzdorf – Recording

One advantage of the Limpet's monoblock approach is that there are no shared electronics. This really pays off in terms of stereo imaging, punchy, clear, bright, with well defined bass and just the right amount of midrange. Tannoy Limpets are an excellent choice, offering a formidable combination of flat, wide ranging response in a compact high power package.

George Peterson – Mix Magazine



MORE HITS ARE MADE ON STUDER TAPE MACHINES.

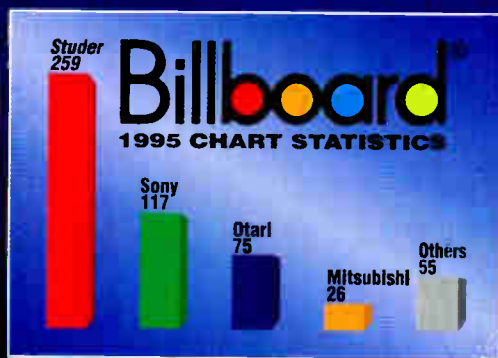


The A 827 analog & D 827 digital recorders show that open-reel is an excellent business investment – and results demonstrate that Studer is the smartest choice of all.

IT'S THAT SIMPLE.

TAKE A LOOK at the production credits for *Billboard's* No. 1 singles, almost any week of the year, and you'll see the same story: *more hits are produced on Studer tape machines than on all other open-reel recorders combined**.

Perhaps it's hardly surprising. For almost 50 years, Studer machines have been a vital part of literally thousands of hits. And today, when more



*Based on an analysis of *Billboard's* Production Credits charts for 1995, Studer machines are used on many more hit records than any other open-reel recorder ("Others" includes both open reel, MDMs and disk-based systems).

than ever before, quality, reliability and compatibility count, Studer 827 Series tape machines are more in demand than ever. Analog or digital, there's a Studer recorder for *your* hits.

There's never been a better time to invest in your studio's future – by starting your own Studer track record.

It really is that simple.

STUDER
PROFESSIONAL AUDIO EQUIPMENT

A Harman International Company

Hits Today – Hits Tomorrow.

The *Billboard* logo is © 1995 BPI Communications, Inc. Used with permission from *Billboard* magazine.

Los Angeles: 818/703-1100. Nashville: 615/391-3399. New York: 212/807-0377. Toronto: 416/510-1347. London: +44 (0) 181 207 5050. Worldwide Distribution: Studer, Regensdorf, Switzerland +41 (0) 1 870 75 11.

USE READER SERVICE CARD FOR MORE INFO

SEE US AT AES BOOTH # 611

MIX[®]

PROFESSIONAL RECORDING • SOUND AND MUSIC PRODUCTION

NOVEMBER 1996, VOLUME 20, NUMBER 11

AUDIO

- 18 Fast Lane:** ABC, They Showed Me *by Stephen St. Croix*
- 22 Insider Audio:** Vintage? You Don't Know Vintage! *by Paul D. Lehrman*
- 28 Lunching With Bonzai:** The Rhino Brothers *by Mr. Bonzai*
- 36 Los Angeles Recording:** The State of the Industry, 1996 *by Maureen Droney*
- 44 Studio Maintenance:** Sex & Drugs & Rock & Roll & Chaos *by Chris Michie*
- 68 An Audio Walk Through the Atlanta Olympic Games** *by Mark Frink*
- 84 A Reader's Guide to Vintage Gear** *by Fletcher*
- 104 40 Years of Capitol Studios** *by Maureen Droney*
- 112 The Project Studio:** Gary Chang *by Dan Daley*
- 114 International Update**
- Around the World by DAT With David Parsons *by Blair Jackson*
 - The Liverpool Institute for Performing Arts *by Stephen Webber*
- 128 Producer's Desk:** Delfeayo Marsalis *by Robin Tolleson*
- 136 1996 Audio Production Facilities Survey Results**
- 140 Codecs, Part Two:** Digital Audio Data Compression Hardware *by Mel Lambert*



PAGE 104

- 182 Milestones:** 50 Years of JBL *by Tom Kenny*
- 290 Producer's Desk:** Geza X *by Adam Beyda*
- 300 Recording Notes**
- Tori Amos *by Bryan Reesman*
 - "Subplay" *by Evan Ambinder*
 - Simon Tassano *by Bryan Reesman*
 - Classic Tracks: Jackson Browne's "The Pretender" *by Blair Jackson*

AUDIO POST-PRODUCTION

- 56 Terminator 2 Comes to Universal Studios Florida** *by John Monforte*
- 148 Production Sound for "Evita," the Movie** *by Keith Spencer-Allen*
- 156 Realizing the Music for "Shine"** *by Larry Blake*
- 168 Post Script**
- The Real Digital Nagra *by Larry Blake*
 - Composer Hummie Mann *by David John Farinella*
 - Post Logic Studios, Hollywood *by Mel Lambert*
 - Digital Dubbers *by Mel Lambert*



PAGE 84

PRODUCTS

- 184 Field Test:** Lexicon PCM 90 Digital Reverb
by Mark Frink
- 186 Field Test:** Tascam DA-38 Modular
Digital Multitrack *by George Petersen*
- 192 Technology Spotlight:** dbx Blue Series
by George Petersen
- 194 Field Test:** Neumann M149 Tube
Condenser Microphone *by Michael Cooper*
- 200 Technology Spotlight:** Genelec 1029A
Studio Monitors *by George Petersen*
- 202 Field Test:** Soundscape SSHDR1 Multitrack
Hard Disk Recorder *by Dave Tosti-Lane*
- 225 AES New Products Guide**
- 318 Shure's 55 Series Microphones:** Performance Lives
on Over Six Decades *by Gregory A. DeTogne*

LIVE SOUND

- 210 SoundCheck**
- Computer Control and Sound Reinforcement Systems
by David Scheirman
 - MediaMatrix Technology on the Road With Kenny G
by Rod James
- 211 Tour Profile:** Elvis Costello & The Attractions
by Barbara Schultz
- 212 Tour Profile:** The Sex Pistols *by Barbara Schultz*

PAGE 192



PAGE 44

DEPARTMENTS

- 8 From the Editor**
- 10 Current**
- 14 Industry Notes**
- 322 Coast to Coast** (Includes
NY Metro, L.A. Grapevine,
Nashville Skyline, Sessions
& Studio News)
- 334 Studio Showcase**
- 344 Ad Index**
- 350 Marketplace**
- 356 Classifieds**
- 368 Feedback**

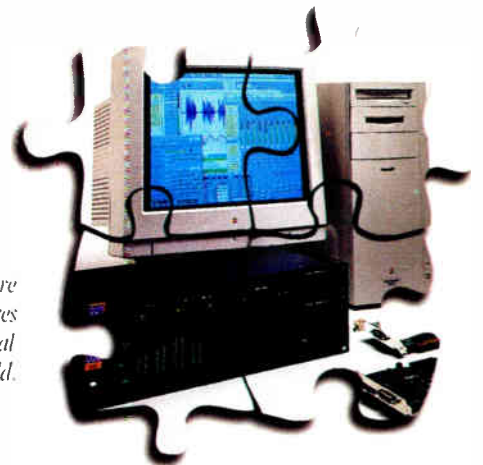
Cover: Studio 1 at Ocean Way in Hollywood has hosted sessions since the '60s for artists such as Frank Sinatra, the Beach Boys, Bob Dylan, Bruce Springsteen, R.E.M. and U2. The studio, which was originally designed and built by Bill Putnam and Jack Edwards, was remodeled this year by owner Allen Sidas. As part of the redesign, a new console was installed: a custom Neve 8078 with GML moving fader automation, 32 additional monitor mix inputs, 4-band 8078 EQ and 64-channel metering. Microphones pictured are (L to R) Telefunken ELAM 270 (circa 1962), AKG C-12 (circa 1962), Neumann U47P (1963-64) and a Neumann M50 (1960). **Photo:** Ed Freeman
Inset Photo: Bill Kaye/© Cinergi Pictures



Check out Mix Online
<http://www.mixmag.com>



48-track capability and punch-on-the-fly are only part of the many professional features which make Pro Tools the best selling digital audio workstation in the world.



Putting the Pieces Together

for a totally integrated studio...



Recording

With Pro Tools it's not just recording. There's non-destructive recording. There's loop recording. Try it over and over until you get the take you like. And do it in the digital domain. Clean, crisp, or cutting edge.



Editing

On-screen waveforms let you see what you've been hearing. Sophisticated editing tools let you cut with precision, without affecting the original audio. Piece together dozens of takes to create the ultimate performance. Be precise. Get creative.



Mixing

Not only will you be mixing in the digital domain, you'll have relative fader grouping and dynamic automation of virtually all parameters. Expand your mixing capabilities with powerful Plug-Ins from over 100 Digidesign Development Partners.



Mastering

With MasterList CD software, you can prepare your project for CD mastering. It's the recommended software with the necessary features for professional CD-DA creation. No need to worry about how a cassette will sound. Think about how the CD jackets will look.

If you spend enough time and enough money, you can put together a bunch of gear to do a bunch of things. But no matter how many things you piece together, they will never equal a Pro Tools system.

Pro Tools provides you with the best tools to accomplish every important task involved in audio production, from concept to finish. Right here, right now, right on your desktop.

But great tools and great ideas are not the end of the story, they are the beginning. With the functionality that Pro Tools offers, you'll be creative in ways you've never imagined before. Experiment. Assemble a knock-out solo. Triple the tracks. Undo. Fly them in backwards. Re-do.

Putting the pieces together is easy when the pieces are all there. And with Pro Tools, the whole is greater than the sum of its parts...and then some.

Find out how Digidesign can provide you with the solution for a totally integrated studio. Call **1-800-333-2137, ext. 267** for more information or our **free** Pro Tools video.

Digidesign provides complete solutions for music production, audio post production for film and video, multimedia, and radio broadcast production.



SEE US AT AES BOOTH # 855

www.digidesign.com



A Division of Avid Technology, Inc.

©1996 Digidesign, a division of Avid Technology, Inc. All features and specifications subject to change without notice. Digidesign and Pro Tools are registered trademarks of Digidesign or Avid Technology, Inc.

World Radio History

FROM THE EDITOR

ESCAPE TO L.A.

Sure signs of autumn: Birds fly south. Trees show their colors and drop their leaves. The weight of *Mix*'s November issue strains the backs of thousands of postal employees. And legions of audio pros flock to the Audio Engineering Society convention.

I last walked the floor of a Los Angeles AES show in 1990. Leaving the cavernous convention center, I snagged a souvenir provided by those lovable crazies from L.A.'s AES chapter: cardboard spinners with tongue-in-cheek markings for selecting pin 2 or pin 3 hot. They're irresistibly cool. I have one on the wall in my office, and anyone walking by seems compelled to give it a twirl. Now, six years later, the lure of California's Southland magically compels the audio community to return to Los Angeles for the 101st AES convention. And my sources say it's gonna be great.

The papers/workshops schedule is superb. Forget the lofty, pie-in-the-sky approach. This time, the emphasis is on real-world solutions—sessions include project studio design, audio for the Internet and digital multitracking. The technical tours take you inside some of the world's leading facilities. And both the TEC Awards at the Regal Biltmore and the AES party at the Petersen Automotive Museum (no relation) should provide spectacular backdrops for networking, schmoozing and good ol' circuit designing on rum-stained cocktail napkins. (Why else do we go to AES anyway?)

After hours, if you tire of the hotel bar action, cab up to Olvera Street (eight Mexican restaurants in one block) for *flautas calientes y Coronas frios*. Afterward, cross the street and check out Union Station, an art deco masterpiece used in hundreds of train movies.

Back to the show: Must-see highlights on the convention floor include low-cost digital consoles (RSP Project-X, Soundtracs Virtua and Yamaha's 02R and 03D); a couple not-so-low-cost new digital consoles (Amek DMS and AMS Libra); and 4-track MiniDisc studios from Sony, Tascam and Yamaha. Analog buffs seeking a challenge should try to see all of the 137 new mic preamps and tube microphones in one day!

Whether you're bound for AES or not, you can get a sneak preview of what's to come by checking out this issue's AES New Products Guide, featuring nearly 400 recent equipment debuts, along with "Technology Spotlights" on Genelec's low-cost 1029A monitors and dbx's red-hot Blue Series (are you ready for 27-bit DACs?). Giving equal time to older gear, audio raconteur Fletcher offers a guide to vintage outboard devices, while Greg DeTogne recounts the half-century history of Shure's Unidyne dynamic mic.

Keeping with our Los Angeles AES theme, this issue includes a look at the state of the local recording scene, a picto-history of Capitol Studios, maintenance tips from L.A. studio techs, an interview with producer Geza X, a salute to 50 years of JBL and a Bonzai lunch with the founders of Rhino Records.

So I'm heading down (Highway) 101 to AES 101. If you're in town, drop by booth #1422 and say hello.

We'll be there...



George Petersen



Mix magazine is published at 6400 Hollis St. #12, Emeryville, CA 94608 and is ©1996 by Cardinal Business Media, Inc. *Mix* (ISSN 0164-9957) is published monthly. One year (12 issues) subscription is \$46. Single copy price is \$4.95, back issues \$6.00. Send subscription applications, subscription inquiries and changes of address to *Mix* magazine, PO Box 41525, Nashville, TN 37204 or call (800) 843-4086. Outside U.S., call (615) 377-3322. POSTMASTER: Send address changes to *Mix* magazine, PO Box 41525, Nashville, TN 37204. Address all other correspondence to *Mix* magazine, 6400 Hollis St. #12, Emeryville, CA 94608, (510) 653-3307, Fax: (510) 653-5142. Periodical class postage paid at Oakland, CA, and additional mailing offices. Editeur Responsable (Belgique), Christian Desmet, Vuurgatstraat 92, 3090 Ovensse, Belgique. This publication may not be reproduced or quoted in whole or in part by printed or electronic means without written permission of the publishers. Printed in the USA. Canadian GST #129597951; Canada Post International Publications Mail Product (Canadian Distribution) Sales Agreement #0478733.

S T A F F

EDITOR-IN-CHIEF/PUBLISHER Hillel Resner

EDITOR George Petersen
EXECUTIVE EDITOR Blair Jackson
ASSOCIATE EDITORS
Tom Kenny Barbara Schultz
TECHNICAL EDITOR Chris Michie
ASSISTANT EDITORS Adam Beyda Sarah Jones
SOUND REINFORCEMENT EDITOR Mark Frink
MEDIA & MASTERING EDITOR
Philip De Lancia
LOS ANGELES EDITOR Maureen Doney
EAST COAST EDITOR Dan Daley
CONSULTING EDITOR Stephen St. Croix
EDITOR-AT-LARGE Mr. Bonzai
TEC AWARDS EDITOR Karen Margroff Dunn
BOOKSHELF EDITORIAL COORDINATOR Lisa Duran
CONTRIBUTING EDITORS
Larry Blake Bob Hodas Paul Potyten
Paul Lehrman Michael Cooper
Evan Ambinder Rick Clark

ART DIRECTOR Tim Gleason
ASSISTANT ART DIRECTOR Kay Marshall
GRAPHIC DESIGNER Mika Chisaki
GRAPHIC ARTIST Jason Noto

ASSOCIATE PUBLISHER Jeffrey Turner
EASTERN ADVERTISING MANAGER Michele Kanatous
SOUTHERN CALIFORNIA/SOUTHWEST AD MANAGER
Terry Lowe
NORTHWEST/MIDWEST AD MANAGER
Shawn Yarnell
SALES ADMINISTRATOR Karen Dere
ADVERTISING SALES COORDINATOR Tiffany Kendall
SALES ASSISTANTS
Joe Miller Mike Grout Elizabeth Myron Paul James
CLASSIFIEDS & MARKETPLACE MANAGER Robin Boyce
CLASSIFIEDS SALES ASSISTANT Debi Mapp
CLASSIFIEDS ASSISTANT Jef Linson
SHOWCASE & FACILITIES SALES
Shawn Langwell

MARKETING SERVICES MANAGER Jane Byer
PROMOTION MANAGER Christen Pocock

ART DIRECTOR, SPECIAL PROJECTS Michael Zipkin
GRAPHIC DESIGNER, SPECIAL PROJECTS Tami Herrick

PRODUCTION DIRECTOR Georgia George
COLLATERAL PRODUCTION DIRECTOR Ellen Richman
ADVERTISING TRAFFIC MANAGER Joanne Zola
PRODUCTION ASSISTANTS
Tom Marzella Sherry Bloom
COMPUTER SUPPORT TECHNICIAN
Mike Castelli

CIRCULATION MANAGER Phil Semler
CIRCULATION ASSOCIATE Cyndi Lukk
CIRCULATION ASSISTANT Jeanette Campagna

BUSINESS MANAGER Cindy McFarland
RECEPTIONISTS
Angel Alexander Carrie Gebstadt

MUSIC AND ENTERTAINMENT GROUP
DIRECTOR OF OPERATIONS AND MANUFACTURING
Anne Letsch

ALSO PUBLISHERS OF
ELECTRONIC MUSICIAN
MIX BOOKSHELF
RECORDING INDUSTRY SOURCEBOOK
MIX MASTER DIRECTORY

CARDINAL BUSINESS MEDIA, INC.
PRESIDENT AND CHIEF EXECUTIVE OFFICER
Robert N. Boucher, Jr.
VP & CHIEF FINANCIAL OFFICER Thomas C. Breslin
VP, PUBLISHING SERVICES R. Patricia Herron
VP, HUMAN RESOURCES Dorothy J. Flynn
VP, SPORTS & MUSIC DIVISION Thomas J. Morgan
VP, RETAIL DIVISION Marianne Howatson

NATIONAL EDITORIAL, ADVERTISING AND BUSINESS OFFICES, 6400 Hollis St. #12, Emeryville, CA 94608, (510) 653-3307, FAX: (510) 653-5142, e-mail: 74673.3672@compuserve.com. Web site: www.mixmag.com. **EAST COAST ADVERTISING OFFICES**, 162 5th Ave., Suite 1001, New York, NY 10010, (212) 367-8900, FAX: (212) 367-8905. **SOUTHERN CALIFORNIA ADVERTISING OFFICES**, 12424 Wilshire Blvd., Ste. 1125, Los Angeles, CA 90025, (310) 207-8222, FAX: (310) 207-4082. **FACILITIES SALES**, (510) 653-3307. **CLASSIFIEDS ADVERTISING**, (800) 544-5530. **MIX BOOKSHELF/BACK ISSUES**, (800) 233-9604, (908) 417-9575. **SUBSCRIPTIONS**, PO Box 41525, Nashville, TN 37204, (800) 843-4086, (615) 370-5643, e-mail SunBeltFu@aol.com.

Founded in 1977
by David Schwartz and Penny Riker Jacob

We've got

your

Numbers

Gold

CERTIFIED MASTERING AUDIO CASSETTE
467 R-16

The audio mastering
tapes that go gold
more than all other
brands combined.

QUANTEGY

SEE US AT AES BOOTH # 530

for the great moments

401 westpark court • suite 110 • peachtree city, ga 30269 usa
800/227-8443 • www.quantegy.com

USE READER SERVICE CARD FOR MORE INFO

CURRENT

WELCOME TO AES!

This month, the Audio Engineering Society convention returns to Los Angeles for the first time in six years. The show will take place at the renovated Los Angeles Convention Center from November 8-11, featuring more than 350 exhibits and a diverse program of workshops, papers, technical tours and special events.

The theme for the 101st AES show, "Head Out on the Highway," is intended to convey the dynamic movement of the audio industry. The schedule of seminars is designed for a wide range of skill levels and interests, including workshops focusing on audio in Latin America, women in audio and a day of activities devoted to students and education. For more information, visit the AES Web site at www.aes.org.

TEC AWARDS TICKETS AVAILABLE

A limited number of tickets are available for the Twelfth Annual Technical Excellence & Creativity Awards, which take place on Saturday, November 9, at the Regal Biltmore Hotel in Los Angeles. Tickets may be purchased prior to the AES convention by calling 510/939-6149; at the show, they may be purchased at the *Mix* booth, number 1422. The partially tax-deductible ticket price of \$100 includes dinner and the awards ceremony.

HARMAN PRO RELOCATES TO NASHVILLE

Harman recently completed its move to a new 30,000-square-foot facility in Nashville. Harman companies AKG, BSS, Soundcraft and Studer are at the new headquarters, under the newly formed management team of Marc Leveridge, Doug MacCallum, Ridge Nye, Joe Bean and Paul Freudenberg. The new corporate address is 1419 Donelson Pike, Airpark Business Center 12, Nashville, TN 37217. Phone 615/399-2199; fax 615/367-9046.

BRAMANTE RUNS FOR GOVERNOR

New Hampshire voters will decide this month if Fred Bramante, founder, president and CEO of the Daddy's Junky Music retail chain, will become governor. "The Bramante Plan" calls for edu-

MIX CO-SPONSORS FILM SOUND FORUM AT AES

Mix magazine, along with Digital Theater Systems, Sony Dynamic Digital Sound and Dolby Laboratories, is sponsoring "Film Sound in the Next Millennium," an AES Convention special event taking place on Friday, November 8, at the Academy of Motion Picture Arts and Sciences' Samuel Goldwyn Theater. A panel of top film sound professionals will discuss changes in the world of film sound and demonstrate their work with a selection of clips. The session, moderated by *Mix* film sound columnist Larry Blake, will feature re-recording mixer Michael Minkler (*The Doors*, *Altered States*, *Die Hard With a Vengeance*), sound designer/re-recording mixer Randy Thom (*The Right Stuff*, *Forrest*

Gump) and production mixer Jeff Wexler (*Independence Day*, *Get Shorty*).

The event is taking place from 6-8 p.m. and is free of charge to AES attendees with badges. No parking is permitted at the Academy Theater. Shuttle bus service from the L.A. Convention Center begins at 5 p.m. Those wishing to drive may park their cars at the Petersen Automotive Museum, site of the AES party that evening, on Wilshire Blvd. (at Fairfax), with bus service to the Academy beginning at 5:30 p.m. Round-trip shuttle service from both locations is \$10. For more information, contact the Audio Engineering Society at 800/541-7299 or 818/357-1289. ■

cation reform that includes increased support of the music curriculum. "Music plays a tremendous role in education reform," says Bramante, "as long as we give students an opportunity to listen and play the music they love."

LIQUID AUDIO, DOLBY TEAM ON INTERNET AUDIO

Liquid Audio, a new, Silicon Valley-based start-up, is teaming up with San Francisco-based Dolby Laboratories to develop CD-quality audio for the Internet. The collaboration will involve combining Liquid Audio's Internet technologies with Dolby's audio compression technology to address the music industry's need for high sound quality, copyright and copy protection online.

VISIT THESE WEB SITES

The Guitar Center Web page features more than 500 pages of entertainment

and services. At www.musician.com.

LFCL, a lender for audio/video businesses, has a Web site at www.lfcl.net that offers detailed information about the lease process.

Rhythm Net's home page offers an interactive band showcase/networking service. Visit www.rhythmnet.com.

The SIA Software page is at www.siasoft.com. There, find company information and downloadable demos of JBL-Smart.

TUBETronix's new Web site, at www.tubetronix.com, promotes its products and service department.

UPCOMING SHOWS

The International Recording Media Association (ITA) is holding its annual Forecast & Update Seminar on November 26 at the Plaza Hotel in New York City. Also, ITA announced next year's REPLtech dates: REPLtech Europe will be held in Barcelona from March 13-15, and REPLtech International will be in San Jose, Calif., from June 3-5. Phone 609/279-1700 for details.

The first Religious Audio Video Computer Equipment Security (RAVCS) convention happens this month, on No-

—CONTINUED ON PAGE 14

CHECK OUT THIS
MONTH'S MIX ONLINE!

<http://www.mixmag.com>



Bag End Time-Align™ Gems



Quartz



Crystal



Sapphire

The Bag End Quartz, Crystal and Sapphire combine the fidelity and efficiency of the ELF™ and Time-Align™ technologies to bring studio quality sound to the concert venue. The low frequency extension and unprecendented sound quality offered by the ELF™ technology is even more incredible when the small size of the Quartz 4 x 18" enclosure is revealed. The Crystal and Sapphire offer highly directive Time-Align™ mid/hi systems designed for smooth arrayable coverage, bringing point source clusters to their physical limits. Call us for the details.

BAG END Loudspeakers
P.O. Box 488
Barrington, Illinois
60011 USA
Voice 847 382 4550
Fax 847 382 4551
Internet info@bagend.com



REALITY FOR \$1500* A PAIR. INTRODUCING

If you've been trusting the quality of your creative product to passive monitors costing \$400-\$600 a pair, there's an astonishing revelation waiting for you at your Mackie dealer. In our opinion, the active,



Mackie acoustic engineer David Bie uses scanning laser vibrometry to map HR824 tweeter dome vibrations. Film at 11.

bi-amplified HR824 is the most accurate near-field monitor available. So accurate that it essentially

HR SERIES HIGH RESOLUTION™ has no "sound" of its

own. Rather, the Mackie Designs High Resolution HR824 is the first small monitor with power response so flat that it can serve as a completely neutral conductor for whatever signal you send it.

You'll hear the precise attack, texture and quality of individual bass notes exactly as they're being recorded. On instrumental and vocal tracks, you'll discern details of pitch, timbre and harmonics that passive monitors simply don't resolve.

SCIENCE, NOT SNAKE OIL.

Internally-bi-amplified, servo-controlled speakers aren't a new concept. But to keep the cost of such monitors reasonable, it's taken advances in measurement instrumentation, transducers, and electronics technology. In

developing the High Resolution Monitor Series, Mackie



HR824 Active Monitors accept balanced or unbalanced 1/4" and XLR inputs.

Jacks & removable

IEC power cord face downward so that the speaker can be placed close to rear wall surfaces.

Designs sought out the most talented acoustic engineers (being able to live in perpetual drizzle was a plus) and then made an enormous commitment to exotic technology such as scanning laser Doppler vibrometry, analyzers, time delay spectrometers and machines that go "ping." The High Resolution Series HR824 is the

result of painstaking research and money-is-no-object components. Not to mention thousands of hours of listening tests and tens of thousands of dollars in tooling.

FLAT RESPONSE...ON OR OFF-AXIS.

One of the first things you notice about the HR824 is the gigantic "sweet spot." The detailed sound field stays with you as you move back and forth across the console — and extends far enough behind you that musicians, producers and your mom can hear the same accurate playback.



The reason is our proprietary exponential high frequency wave guide. Without it, a monitor speaker tends to project critical high frequencies in a narrow beam (Fig. A) — while creating undesirable edge diffraction as sound waves interact with the edges of the speaker (red lines in Fig. A). Imaging and definition are compromised. The "sweet spot" gets very small.

Like biamped speakers, wave guides aren't a new concept. But it takes optimized, internal electronics and a systems approach to make them work in near-field applications.

The HR824's wave guide (Fig. B) maximizes dispersion, time aligns the acoustic center of the HF transducer to the LF transducer's center, and avoids enclosure diffraction (notice that the face of the speaker is perfectly smooth.) The exponential guide also increases low treble sensitivity, enabling the HF transducer to handle more power and produce flat response at high SPLs.



CLEAN, ARTICULATED BASS.

When seasoned recording engineers heard the HR824 at a recent tradeshow, they couldn't believe the controlled low bass extension — several snooped around for a hidden subwoofer. They heard low frequency



The Mackie HR824 Active Monitor. ± 1.5 dB from 42 to 20kHz.

accuracy that simply can't be achieved with passive speakers using external amplifiers. There are many reasons.

First, the HR824's FR Series 150-watt bass amplifier is directly coupled in a servo loop to the 8.75-inch mineral-filled polypropylene low frequency transducer.

It constantly monitors the LF unit's motional parameters and applies appropriate control and damping. An oversized magnet structure and extra-long voice coil lets the woofer achieve over 16 millimeters of cone excursion. Bass notes start and stop instantly, without overhang, distortion or "tubbiness."

Second, instead of relying on ports or slots, the HR824's low frequency driver is coupled to a pair of aluminum mass-loaded, acoustic-insulated 6.5-inch passive drivers. While typical, undersized ports cause vent noise, power compression and low frequency distortion, our ultra-rigid drivers eliminate these problems and couple much more

THE HR824 ACTIVE MONITOR.

effectively with the control room's air mass. They achieve the equivalent radiating area of a 12-inch woofer cone, allowing the HR824 to deliver FLAT response to 42Hz with a 38Hz, 3dB-down point.

Third, the woofer enclosure is air-displaced with high-density adiabatic foam. It damps internal midrange reflections so they can't bleed back through the LF transducer cone and reach your ears.

The typical problem of small-monitor midrange

precisely match each transducer's actual output via electronic adjustments. During final assembly, each HR824 is carefully hand-trimmed to ± 1.5 dB, 42Hz-20kHz. As proof, each monitor comes certified with its own serialized, guaranteed frequency response printout.

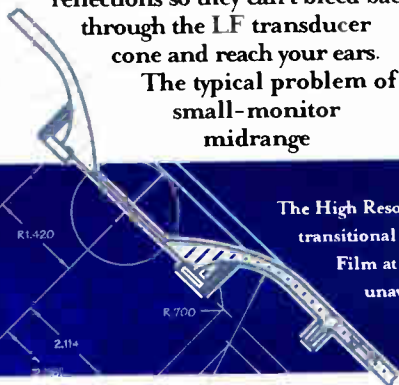
The HR824's front board is 1-inch thick with "radiused" edges to further eliminate diffraction. An "H" brace bisects the enclosure for extra rigidity.

Mackie is the only active monitor manufacturer that also has

Below: The HR824 Development Team. L to R, clockwise: Terry Wetherbee, Cal Perkins, Greg Mackie, David Bie, Paul Brengle, Jeff Hammerstrom, Dan Bonilla and Mats Jarlstrom holding P.D., our Over-20kHz Specialist.

Fig. C: Uneven fabric dome tweeter motion distorts high frequencies.

Fig. D: HR824 alloy dome's uniform, accurate pistonic motion.



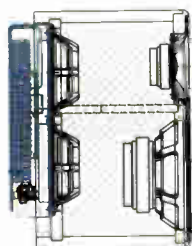
The High Resolution transitional wave guide. Film at II unavailable.



"boxiness" is eliminated.

A TRUE PISTONIC HIGH-FREQUENCY RADIATOR.

We scoured the earth for the finest high frequency transducers and then subjected the likely candidates to rigorous evaluation. One test, scanning laser vibrometry, gives a true picture of surface vibration patterns. Two test results are shown in the upper right hand corner of this ad. Figure C is a conventional fabric dome tweeter in motion. You



needn't be an acoustic engineer to see that the dome is NOT behaving as a true piston.

Figure D shows our High Resolution metal alloy dome at the same

frequency. It acts as a rigid piston up to 22kHz, delivering pristine, uncolored treble output that reproduces exactly what you're recording.

INDIVIDUALLY OPTIMIZED.

You won't hear it from other manufacturers, but individual low and high frequency drivers can vary more than 10% in sensitivity due to production variations. Because our monitor is active, we can

experience building stand-alone professional power amps. The HR824 employs two smaller versions of our FR Series M•1200 power amplifier — 100 watts (with 150W bursts) for high frequencies, and 150 watts (200W peak output) for low

HR HIGH RESOLUTION SERIES™ frequencies. Both **FR** FAST RECOVERY SERIES™ amps make use of

high-speed, latch-proof Fast Recovery design using extremely low negative feedback.

TAILOR THEM TO YOUR SPACE.

Because control rooms come in all shapes, sizes and cubic volumes, each HR824 has a three-position Low Frequency Acoustic Space control. It maintains flat bass response whether you place your monitors away from walls (*whole space*), against the wall (*half space*) or in corners (*quarter space*). A low frequency Roll-

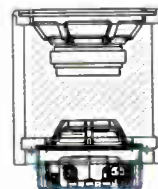
Off switch at 80Hz lets you emulate small home stereo speakers or popular small studio monitors.

CONFRONT REALITY AT YOUR MACKIE DESIGNS DEALER.

We've made some pretty audacious claims in this ad. But hearing is believing. So bring your favorite demo material and put our High Resolution Series monitors through their paces.

If you've never experienced an active monitor before, you're going to love the unflinching accuracy of Mackie Designs' HR824s.

If you've priced other 2-way active monitors, you're going to love the HR824's \$1498/pair price* AND its accuracy.

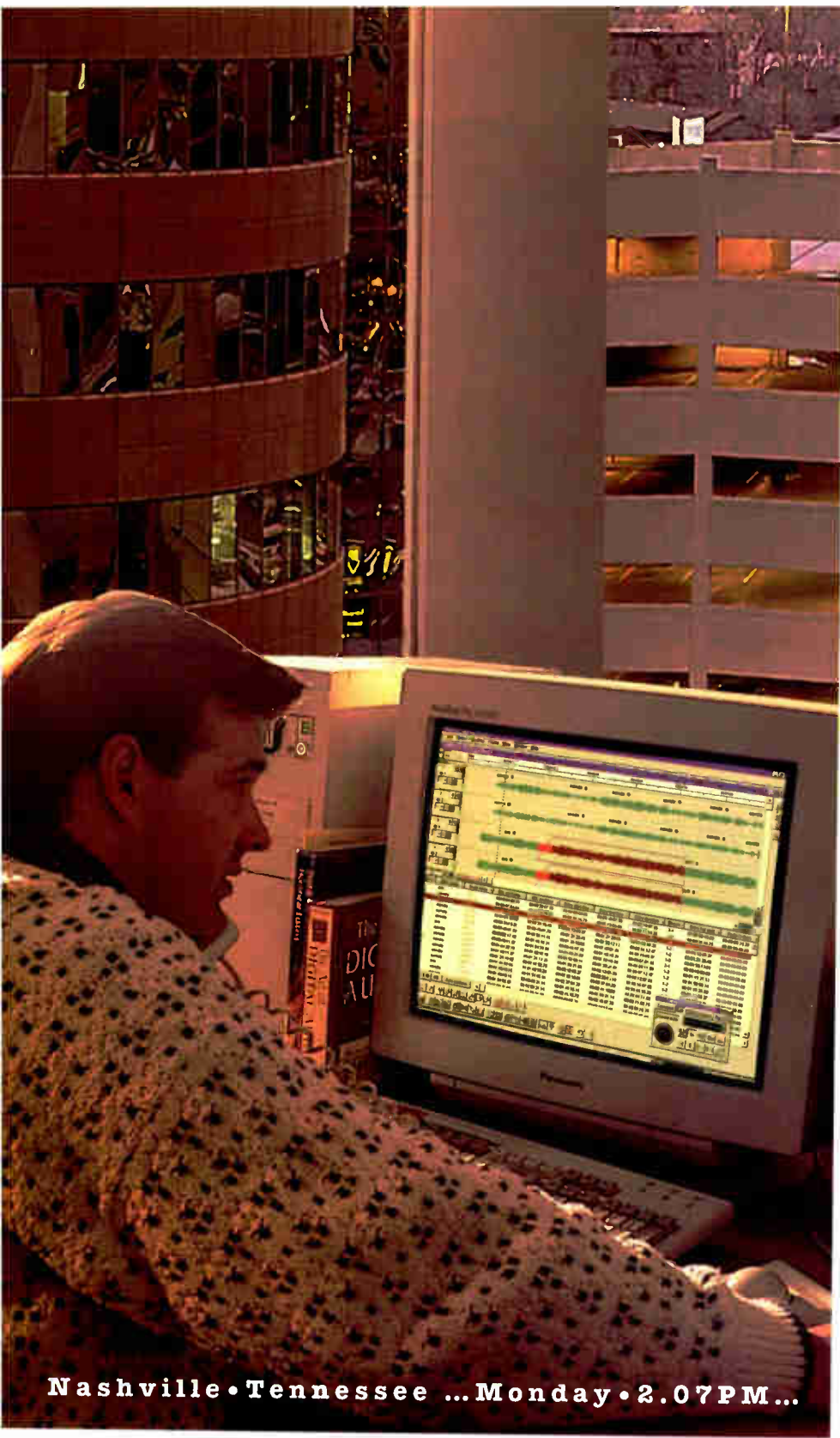


*\$1498 suggested U.S. retail price per pair. © 1996 Mackie Designs Inc. All rights reserved.

MACKIE™

Woodinville • WA • USA • 98072 ☎ 800/898-3211 ☎ 206/487-4337 • e-mail sales@mackie.com
For information about distribution outside of the USA ☎ 206/487-4333 ☎ 206/485-1152

USE READER SERVICE CARD FOR MORE INFO



Nashville • Tennessee ... Monday • 2.07 PM ...

Studio Audio Digital Equipment Inc
1808 West End Avenue, Suite 1119,
Nashville, TN 37203.

Tel: 615 327-1140
Fax: 615 327-1699



Esslingen • German

Studio Audio Distribution in Europe GmbH
Villa Leinen, Kollwitzstraße 16,
73728 Esslingen, Germany.



MODULAR DIGITAL EDITING

• Mastering systems • Broadcast editing systems •

• Portable editing systems •

For

windows



.. Monday • 9.07 PM ...



Cambridge • UK ... Monday • 8.07 PM ...

Tel: +49 (0)711 3969380
Fax: +49 (0)711 3969385

Studio Audio & Video Ltd
The Old School, Stretham, Ely,
Cambridge. CB6 3LD. UK.

Tel: +44 (0)1353 648888
Fax: +44 (0)1353 648867



USE READER SERVICE CARD FOR MORE INFO

ATM networking solutions

• Post production systems • Noise reduction •

ABC

THEY SHOWED ME



ILLUSTRATION: FABIAN CITA

On August 19 I found myself sitting in a metal box under water down behind the bleachers at a Dolphins-Vikings game in Joe Robbie Stadium, just north of Miami. Actually, there were a lot of guys in metal boxes, some under water like me, some under the bleachers, and all connected by lots of wires. Then there were lots more wires going out to the field.

This night I underwent two totally new experiences: I saw the first football game of my life, and I looked straight into the face of true audio hell.

First the game. As I was a guest of ABC Sports, and as they gave me one of those magic TV Press badges that lets you go anywhere, I did just that. I watched from the

dugout, from the field, from the tunnel, from the video trucks, from everywhere. Here is my professional assessment of the game. Don't stand around in the tunnel!

Cheerleaders are real small and don't seem to inflict that much damage when they run into you, though it does seem to break their stride a bit. Security appears in raucous waves somewhere behind you. This interesting mix of creatures seem to have the unique skill of running very, very close to you without actually touching at all, though their antennae might slap you in the face a bit. Players. Ah, the players. They magically appear behind, in front of, around and on

you, and then are gone, sort of projected directly onto the field, where they enjoy an instant bath of 125dB cheers (unless they are not the home team—they got an ambivalent silence).

The players are larger than my 185 lbs. of 6' 2", yet each is somewhat smaller than an 18-wheeler semi. Somewhat smaller. Their cars cost more than 18-wheelers. I spent a lot of time looking at their cars. It's amazing what a car dealer will let you do to a perfectly good Mercedes 12-cylinder sports coupe if you are bigger than them and have bucks leaking out of every seam in your uniform.

Anyway, on to the technical aspects of the program. Here I had

—CONTINUED ON PAGE 348

BY STEPHEN ST. CROIX

MEMO

FROM: John
TO: Wayne
RE: Bill R. demo

Problem
Demo sounds great!
But it's still missing
something -
More vocals? J.

SOLUTION
the
DigiTech
Studio
Vocalist!
W

DigiTech

STUDIO Vocalist

3-5 PART HARMONIES
Triggered by one voice.
Use live and recording



99 HARMONY PRESETS
Great for Rock, Jazz,
Country and more!



SEQUENCE YOUR HARMONIES

If you are using virtual tracks,
you can build your harmonies
and edit them like any other
sequence data



LUSH VOCAL THICKENING

Add 4-voice detuning to
give your lead vocal that
big double-tracking sound
for live or recorded use



PITCH CORRECTION

Save an otherwise great
recorded vocal take by fixing
a bad note



GENDER BENDER™

Apply male or female tonalities
to your harmonies.
Make your voice sound skinny or
fat, more human!



BUILT IN KEYBOARD

for quick and easy com-
mands.
Also includes a tone genera-
tor for cueing singers



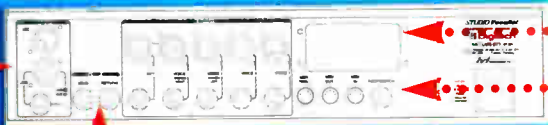
PHANTOM POWER

48v for your condenser mics



BIG, BRIGHT DISPLAY

Easy to read, easy to edit.
Soft keys let you zoom in
on editing parameters
quickly and simply



STAY DIGITAL

With SV-I/O digital I/O
option card AES/EBU,
S/PDIF at 44.1 or 48 kHz



FLEXIBLE INPUTS & OUTPUTS

XLR + balanced 1/4" inputs
and independent outputs for
each voice



EXTERNAL LOOP

For use with your favorite
compressor, de-esser or other
effects



FOOTSWITCH

For live use - programs
up/down/bypass

NO PROBLEMS, ONLY SOLUTIONS

You've had a great session, you've captured some great vocal performances but the track cries out for something more. Some big, fat vocal harmonies would really make this cut kick, but it's the next day and your singer is back on the

road. So you simply run the lead vocal into the Studio Vocalist, select one of 99 presets and suddenly you've found just what you've been looking for; spectacular group harmonies.

You've also fixed that one flat note in the best vocal take using the pitch correct feature. It's almost magic. Your cut is starting to sound like a hit! The Studio Vocalist is so easy to use, you decide to try it for

yourself, "live" at the gig. This box is absolutely amazing. The Studio Vocalist, another Vocal Solution from DigiTech.

Available at your nearest dealer.

STUDIO Vocalist

5 PART VOCAL HARMONY PROCESSOR WITH PITCH CORRECTION FOR LIVE AND STUDIO USE



MIDI Vocalist

Also available from DigiTech, the economical, real-time MIDI vocalist.

5 PART VOCAL HARMONY PROCESSOR FOR LIVE AND STUDIO USE

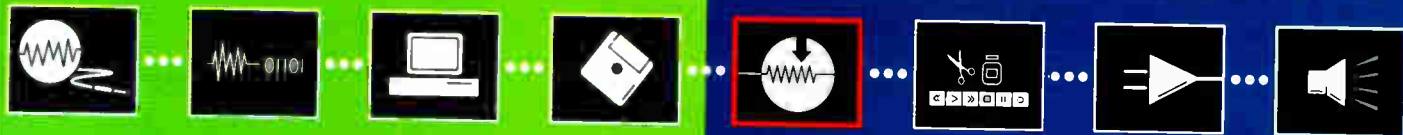
DigiTech

A Harman International Company

Hearing is believing! Phone 1-800-999-9363 to order the FREE Studio Vocalist Demonstration CD. Visit us online at www.digitech.com

8260 S. Sandy Parkway, Sandy, UT USA 84070 (801)566-8800 Fax (801)566-7005 ©1996 DigiTech

USE READER SERVICE CARD FOR MORE INFO
World Radio History



The 168RC is the first truly affordable, fully digital, 8 bus recording console. Use it with your ADAT or other digital recorder equipped with the ADAT optical interface to create the best sounding recordings you've ever made.

168RC Digital Recording Console

The heart of a new, component-based Digital Recording System from Soundlink

The 168RC is the first digital console to feature two ADAT optical interfaces (yielding 16 channels of digital input) and eight analog inputs as standard equipment. It makes the creative control and sound quality of an all digital, fully automated recording system an affordable reality.

Powered by Korg's proprietary MSP processor, our SoundLink DRS 168RC offers instantaneous control, processing and routing of all 24 inputs, 16 channels of mixing and 8 bus outputs.

With its combination of analog, ADAT optical and S/PDIF I/Os, the 168RC easily functions as the heart of a fully digital recording system while interfacing with any of your existing analog gear.

The 168RC is equipped with three-band EQs



SoundLink DRS brings the reality of all digital, fully automated, component based recording to everyone working on the next great recording. For more information about the 168RC Recording Console or any of the SoundLink DRS components, just call (516) 333-8737.

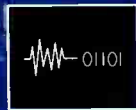
featuring semi-parametric high and low bands, fully parametric mid bands and 30 memories for EQ setups.

The 168RC also boasts two internal effects processors that run some of the finest algorithms available. Choose from 32 effects types and 50 preset programs.

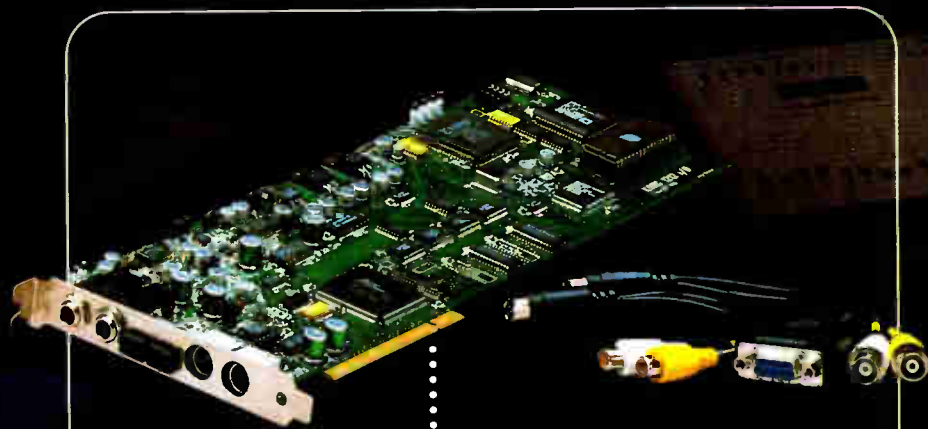
The 168RC even provides automation functionality that lets you save and recall console settings or record and playback dynamic parameter changes.

Affordable, fully integrated digital recording is finally here. So check out SoundLink DRS and the 168RC today. You can't beat this system.

SoundLink DRS Digital Recording Systems *Affordable, fully integrated digital recording Down to a System.*



SoundLink DRS 1212 I/O Multi-Channel Audio Interface



The SoundLink DRS 1212 I/O, along with Deck II software, brings the price of full-function, multi-channel computer based recording to a point that just about anyone can afford. And since the 1212 I/O conforms to the new PCI format, your investment will last longer than just a few months!

With the power of advanced personal computers, full-function multi-channel recording and editing is possible without the addition of costly, specialized hardware. The only true limitation has been in the area of multi-channel I/O. With the introduction of the SoundLink DRS 1212 I/O Multi-Channel Audio Interface, that limitation no longer exists.

The 1212 I/O features 12 inputs and 12 outputs configured as two analog I/Os, an S/PDIF I/O and an eight channel ADAT optical I/O. All the I/Os can be used simultaneously. For even more control and flexibility, the 1212 I/O connects to Korg's 168RC Recording Console, or to the Korg 880A/D and 880D/A interfaces.

The new 1212 I/O even offers a Word Clock input and output, plus an ADAT time code input, for system synchronization. Between the 1212 I/O with Deck II

168RC Recording Console, the heart of the SoundLink Digital Recording System.



For more information about SoundLink DRS components, call (516) 333-8737.

software, the 168RC Recording Console, an ADAT and a Trinity Music Workstation DRS, the combinations and configurations can meet the needs of just about any music production application.

All of the devices will interface with your existing analog equipment and form the basis for a completely digital system that will give you sound and creative control that simply isn't possible in the analog world.

Affordable, fully integrated digital recording
Down to a System.

SoundLink DRS
Digital Recording Systems

See us at AES Booth 835

VINTAGE? YOU DON'T KNOW VINTAGE!

AUDIO'S TIMELESS TREASURES

Some "vintage gear" you may have missed:

Tortola Time AnTicipator (manufactured 1974-76). A pre-delay unit that produces single or multiple iterations of a sound a specified period of time before it actually occurs. The design is based on research done by the late, discredited, Dr. I. Asimov into the endochronic properties of resublimated thiotimoline (USP), a substance which dissolves 1.12 seconds before being put into water. Thiotimoline has been used (mostly unsuccessfully)

in military, space travel and communications applications, but the AnTicipator is its only known application in the creative arts.

Using "bucket brigade" devices made from real buckets—i.e., a tiny series of 16 water pails inside the unit attached to a small motorized cam, which continuously dumps the contents of each one into the next—predelays of up to 18 seconds can be produced. This makes it possible, for example, to move a lag-gard snare beat forward,

to compensate for a late entrance in the horn section or perhaps to insert a chorus in front of a verse, before the singer has gotten around to actually singing it. The unit must be used in a horizontal position, because attempting to use it vertically would cause quite a mess.

The Time AnTicipator was very popular among unscrupulous producers who found they could stack several of them together and use them to record a session player's tracks before he or she showed up. When the player did come around, the producer could say, "Oh, we already got that," and

BY PAUL D. LEHRMAN

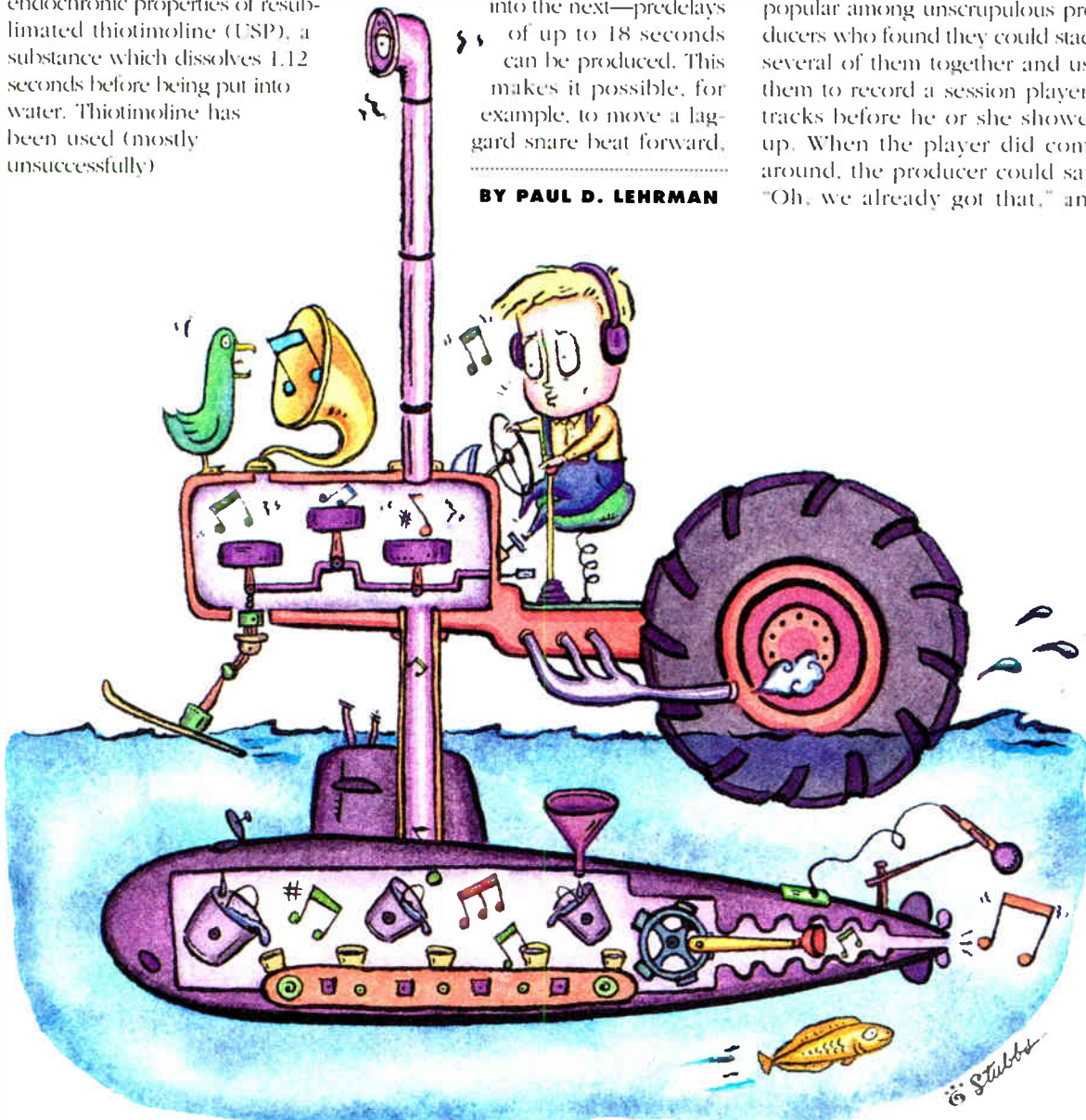


ILLUSTRATION: CHARLES STUBBS



GREAT SOUND BEGINS WITH AKG

AKG large diaphragm condenser microphones all share one common denominator; the complete linear transfer of all transmission parameters. What you hear is what you get. From the legendary C414 to the vintage tube C 12 VR and the versatile C3000, AKG professional studio microphones are optimized for any vocal or instrument application. Engineered for uncompromising quality, it's pure AKG.



A Harman International Company

1449 Donelson Pike • Nashville, TN 37217 USA
Phone: 615-399-2199 • Fax: 615-367-9046

USE READER SERVICE CARD FOR MORE INFO
World Radio History

SEE US AT AES BOOTH #922

INSIDER AUDIO

send them home without paying them. This shameful practice ended, however, after the players caught on and stopped coming to sessions they had contracted for, thus causing the pre-delayed tracks to come out blank. It is now primarily used by club DJs to do dance remixes of Top-40 records before they are finished.

The AnTicipator was made in New Jersey, but the inventor named it after a tropical island that he thought sounded pretty cool, even though he had never been within a thousand miles of it. Original price \$2,000; street price today \$400, water and thiotimoline refills extra.

Sputnik 1017 All Glory to Marx, Lenin, Etc. Mikrofon (1954-6). This large-diaphragm unit was the glory of the Soviet space effort and was used on newsreel soundtracks throughout the Cold War. Its 12-foot diaphragms were remanufactured from the hulls of decommissioned WWII icebreakers, and weigh approximately 14 tons each. The 3-billion volt electret charge is provided by a van de Graff generator, which is cooled by a system con-

taining pure alcohol derived from potatoes.

The 60-pound amplifier tube, the 3000000000DCX7GT, contains elements made from Uzbek yak hair and pure plutonium, smuggled in from the

**The AnTicipator
is now
primarily used
by club DJs
to do dance remixes
of Top-40 records
before they are
finished.**

West inside pumpkins and Rosemary Clooney records. The power supply capacitors were manufactured from slightly used atomic bomb casings.

The 1017 has a dynamic range in excess of 200 dB, but its unique power

supply creates a self-noise figure of nearly 92 dB, which has restricted its use to close-miking of ICBM lift-offs, interplanetary visitations, bomb tests and political conventions, but also makes it particularly suited today for radio talk-show hosts. All known units are currently in storage near a former power plant in Ukraine, making them very "hot" items.

Original price 250,000 rubles; street price \$250 plus freight (FOB Chernobyl), and appropriate permits.

The John Dearie 704 Acoustical Compressor (1907-9). The Dearie company developed this device as part of a diversification effort to open up new markets for their best-selling Model 704 9,000-cubic-inch, long-throw, 2-cylinder agricultural and tractor motor, capable of developing 108 horsepower at 725 rpm. Since the full dynamic range of a symphony orchestra could hardly be contained on the cylinders and wax discs used by the recording industry at the time (38 dB, max), acoustical compression was seen to be a practical technique for reducing that dynamic range. Although no record of complementary expansion has been found, this device could serve

**For Musicians
Who Bought
The Other
Digital
Multitrack
SORRY!**



equally well as an expander, thereby permitting the development of competing noise reduction systems as early as 1908.

The technology of the Dearie 704 bears a striking resemblance to today's "active" noise-cancellation processors: The air pressure output of the double-acting pistons serves to cancel the detected pressure-fronts of the acoustical sound wave. Threshold is established by a pair of low-inertia, fast-acting mercury barometers (one inverted), which close and open relief valves for the pistons. While the signal level is below the threshold, the valves remain open throughout the engine cycle, so the sound passes unchanged, but when the threshold is reached, the valves partially or completely close (depending on the "ratio" setting), causing the 9,000 cubic inches of displacement to modulate the air, in a kind of negative acoustic feedback, thus reducing the output level.

The threshold is adjustable from 8 to 25 microbars, or approximately 92 to 102 dB SPL—the high SPL numbers being necessitated by the incredible racket the device makes. The motor speed is modulated by (and phase-

locked to) the mechanical output of the two barometers. Eliminating the inertial flywheel of the motor allows it to accommodate rapid changes in frequency.

Attack and release times are a bit dicey, since the hysteresis of the barometer pairs is somewhat erratic. Use in an air-conditioned environment is mandatory, since high humidity can cause a change of state during loud positive excursions of the waveform, causing an intermittent spray of water and crankcase oil, modulating at the frequency of the signal, to get all over everything. Even with no flywheel, the motor has too much inertia to detect or compress signals greater than about 175 Hz (10,500 rpm), and so a steep low-pass filter must be used at the input, or the unit's attempts to process higher-pitched signals will quickly tear it to shreds.

The most serious problem of the 704, which eventually caused it to be pulled off the market, is its erratic pressure output, which occasionally lags in phase by as much as 150 degrees, causing expansion instead of expression. This, of course, would severely overtax the recording system. In one notorious

incident, during an attempt to record the Boston Pops' Independence Day concert, seven gramophone diaphragms exploded simultaneously, injuring several Dearie engineers and catapulting most of the cello section into the Charles River. After this episode, the company went back to agricultural implements exclusively, closing the door on a most interesting, if idiotic, experiment in audio history.

Original price, \$499.95; street price (a few remaining units can be found in abandoned equipment sheds and bomb shelters), \$1,500. Your mileage may vary.

Unterfunkengesellschaft USB1 Sub-Sub Woofer (1908-14, remanufactured 1938-41). This cylindrically shaped very very very low-frequency driver, affectionately known as "The Boot," represents the best in early 20th-century German metallurgical engineering. It was designed on orders from the Kaiser's public-relations machine, who were desperately trying to convince England and France that all of the frantic activity in the Krupp shipyards was actually devoted to goods for peaceful, civilian use.

—CONTINUED ON PAGE 347

**For The Rest Of You
YOUR TIME HAS COME.**

Now you can have the digital multitrack you really want. Designed specifically for musicians, the DA-38 is packed with new features and uses the same award winning Hi8 format and technology as TASCAM's highly acclaimed DA-88. The same quality, durability and dependability. And the same great sound. The DA-38 is completely compatible with the Hi8 machines used by post-production pros. Pros who can afford anything — but won't settle for less than the best. Till now, the best has had its price. But for the musician, your time is here. At \$3,499* Hi8 is priced for you. So get to your dealer and buy your first DA-38. You won't be sorry!

TASCAM
Take advantage of our experience.

TASCAM
FAXBACK
1-800-827-2288

INFORMATION+SPECS VIA FAX
800 • 827 • 2268
DOCUMENT #8600

© 1996 TEAC AMERICA, INC. 7733 TELEGRAPH ROAD, MONTEBELLO, CA 90640 (213) 726-0303 TEAC CANADA LTD.
340 BRUNEL ROAD, MISSISSAUGA, ONTARIO L4Z 2C2 CANADA (905) 890-8028 *MSRP

USE READER SERVICE CARD FOR MORE INFO

World Radio History

NOVEMBER 1996, MIX 25

Jacks Below

And Other Truths About 8-Bus Recording Consoles



Get Back Jack. Get Real.

Have you ever seen a pro-studio recording engineer mess with the cables on a console? Of course not. That's why true recording consoles have their jacks in back. Look at any console in any serious studio. Truth is, once the console is installed there's no need to change the setup. Like the TASCAM M2600MkII — the next-generation 8-bus. Available in 16, 24 and 32 input models, it looks clean, sounds sweet and works the way you want it to.

All Your AUXes. All The Time.

With 6 AUXes (2 are stereo), the TASCAM M2600MkII has more AUXes than any other console in its class. But the best part is — you can use all six — all the time. No other console in its price range can make that claim. That means you can use more effects, set up multiple independent stereo headphone mixes and have more flexibility. No limitations. And no repatching.

Get Out! Direct or With The Group.

A true sign of a recording console is direct/group switching. That's what makes recording with the TASCAM M2600MkII so smooth. Think about it. Send any signal direct to tape or disk by pressing one button. Or, send a group of signals direct to tape or disk just as easily — no patching here! You'll never have to crawl around or mess with your cables again. Spend more time recording and less time figuring out how.

The Features Demanded by Pros.

The M2600MkII has everything a great recording console should have — and more. It's an In Line configuration with flip switches. And you get your choice of balanced (+4dBm) and unbalanced tape ins and outs. Phantom power (48V) switchable in banks of 8 channels. And an optional multi-process meter bridge so you can keep your eyes on the board — and not your recorder. Plus, a semi-parametric split EQ on every channel and it's ready for automation using any of a number of third party packages.



Maximum Headroom

Increased range of mic amp trim control down to 0dB accommodates +4 signals without using the pad — improves signal to noise ratio.



Double Reinforced Dual-Ground System

Wider ground line patterns on the PCB, extremely heavy gauge wiring, and enhanced electronics yields greater headroom and improved sound quality.



Dedicated Indicator Lights

Each SOLO and MUTE switch includes individual indicator lights so you are assured of their position at all times. No second guessing.



Semi Modular Component Construction

A more expensive, higher quality semi-modular design with 8-channel modular sections makes the M-2600MkII easier to service.

Watch it. Do Those Switches and Knobs Wiggle?

Before you buy an 8-bus console check out the quality. Knobs and switches that wiggle are going to be a problem. For example, check out the controls and faders of the M2600MkII. No play, no wiggling. You can feel the quality. Feel those smooth long throw 100mm faders. Clean. And check out the ergonomics. Even the largest fingers will fit between the knobs. Try that on others!

Use A Solid Heavyweight.

TASCAM has built more recording consoles than any other manufacturer in the world. We know how to build a quality product that will last. The M2600MkII is a solid console. You can feel the difference just trying to lift it. Just compare it to the less serious lightweights on the market. Plus it comes with an extra heavy external power supply that delivers more headroom than anything else in its class. Just what you expect from the leader in multitrack recording.

Get Smart. SmartSwitches!™

The difference is in the design. This is a serious console. Take a look and you'll notice the design touches that distinguish the M2600MkII as the next-generation 8-bus console. Like TASCAM's exclusive self canceling and two-tone SmartSwitches — for protection from redundant operations and visual confirmation of all button positions at a glance. Quite a hassle on others!



Great Sound. The Next-Generation 8-Bus.

The real truth about a recording console is sound. With Absolute Sound Transparency™, high-end mic pre-amps, ultra low-noise circuitry, and high-output op amps, the M2600MkII is amazingly quiet, absolutely transparent and perhaps the best sounding console under \$20,000. And starting at only \$3,199, it's truly the sound decision for a next-generation 8-bus recording console. Put it on your shopping list today.

ing In Back.



TASCAM M2600mkII - The Next Generation 8-Bus



INFORMATION SHEETS VIA FAX
800 • 827 • 2268
REQUEST
DOCUMENT
NUMBER **6630**

TASCAM
...the experience.

© 1993 TEAC America, Inc., 1135 S. Bascom Road, Montebello, CA 94040 (213) 726-0200
TEAC CANADA LTD., 340 Brunel Rd., Mississauga, Ontario L4Z7C2 Canada (905) 277-8888

USE READER SERVICE CARD FOR MODEL 1471

THE RHINO BROTHERS

RICHARD FOOS AND HAROLD BRONSON

Could that be the droll and distinguished voice of Stan Freberg with some new shtick after a hiatus of 30 years? "Rama Lama Ding Dong" by The Edsels? Leonard Nimoy's "I Walk The Line?" Richard Nixon's "Concession Speech?" Howlin' Wolf's "Smokestack Lightnin'?" Yes, the great legacy of America is all here in glorious Rhino vision!

Rhino founder Richard Foos grew up in the '50s as a fan of New York R&B radio and the loopy DJs who ruled the airwaves. An avid collector, he relocated to L.A. and began selling used records from the trunk of his car. In 1973, he opened the first Rhino Records retail store in West Los Angeles. Rhino shopper and rock critic Harold Bronson had a band called Mogan David & His Winos at near-by UCLA, and the



Above: Richard Foos (l) and Harold Bronson. Below left: some of Rhino's Golden Throats.

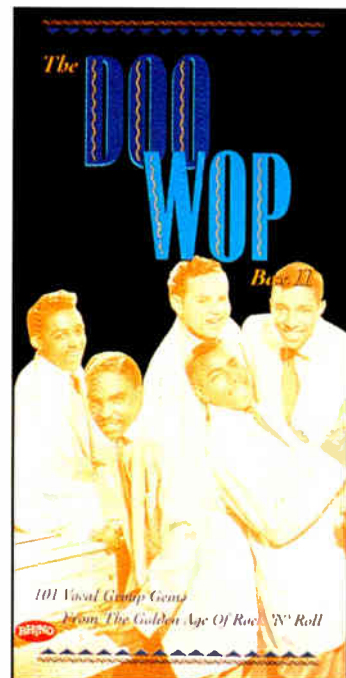
time trip through the music, but also a comprehensive study of the evolution of recording itself.

A browse through the current Rhino catalog yields priceless R&B, blues, doo wop, disco, surf, jazz, and lounge music. Beat poets, comedy and a sagging video shelf filled with everything from *The Lone Ranger* to *Bambi Meets Godzilla*. The legends are respectfully presented, as in *The Heavyweight Champion*, the seven-CD, Grammy-nominated Coltrane collection of everything he recorded for Atlantic. And stark nuttiness is forever enshrined, as in the *Golden Throats* collection featuring William Shatner's compelling "Lucy In the Sky With Diamonds." Rhino also thrives off of an alliance with Turner Classic Movies, releasing beautifully remastered soundtracks from golden-age films. And the company's Forward label exposes a variety of new/alternative artists.

While lounging in the foyer at Rhino I bumped into Dr. Demento.

a true-life character who embodies much of what Rhino is known for. The good Doctor served up a goulash of Rhino stories while I awaited my visit with the Brothers Rhino...

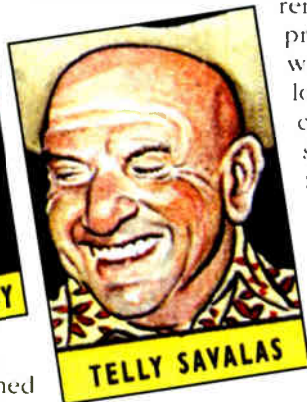
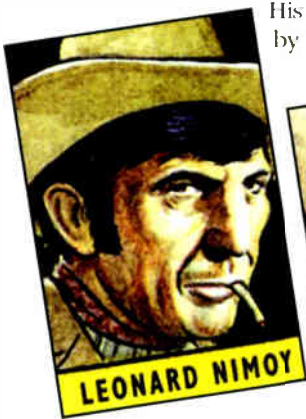
Bonzai: What's the latest and greatest here at Rhino?



BY MR. BONZAI

next year joined Rhino to help balance the books. Today, Foos is president and Bronson is managing director of the very successful Rhino Entertainment. (Watch out for their first feature film, *Plump Fiction*.)

Starting out producing mainly novelty artists and esoteric re-releases, Rhino is now known worldwide for its impeccable compilations and reissues by artists who might otherwise have ended up as footnotes in the music history books. The records are not only a





**LIKE OTHER TOP PERFORMERS,
THE LONGEST LASTING BATTERY USES A STAGE NAME.**

Around the house, DURACELL® batteries go by the name The Copper Top®. But on the job, the longest lasting batteries answer to PROCELL® PROFESSIONAL™ BATTERIES. PROCELL batteries are DURACELL® batteries. The longest lasting professional alkaline batteries you can buy. You get the same DURACELL performance. The same DURACELL dependability. The same DURACELL value, and more, because PROCELL Professional Batteries are specially priced and packaged for professional use. Now that's one act that's hard to follow. For more information or a distributor near you, call 1-800-4PROCELL. Ext. 35.

When it matters the most

DURACELL®
PROCELL® PROFESSIONAL™ BATTERIES

USE READER SERVICE CARD FOR MORE INFO

World Radio History

Actual Size



Introducing the new Alesis
NanoVerb™ 18 Bit Digital Effects Processor.

We packed sixteen of the best sounding,
most usable effects into a compact,
one-third rack space package.

NanoVerb offers lush reverbs,
powerful delay, shimmering chorus and flange,
stunning rotary speaker simulation and big,
fat multieffects.

Plus, you can tweak each program to perfection
with the front-panel Adjust knob.

Actual Price

\$179

Oh yeah...NanoVerb costs \$179*.

so it's actually the most
affordable Alesis digital effects
processor ever made.

To get *your* hands
on a NanoVerb,
see your
Authorized Alesis Dealer today.

For more information about NanoVerb, see your Authorized Alesis Dealer or call 310-841-2272
*U.S. Suggested retail. NanoVerb is a trademark of Alesis Corporation

Alesis Corporation 3630 Holdrege Avenue Los Angeles CA 90016 310-841-2272 alecorp@alesis1.usa.com

ALESIS

USE READER SERVICE CARD FOR MORE INFO

LUNCHING WITH BONZAI

Bronson: We're celebrating the 30th anniversary of The Monkees, and the big news is our new album with all four of them recording together—the first time since the '60s. The title is *Just Us*, which refers to the fact that it is just them, playing and singing everything—they wrote all the songs and produced it themselves. The Monkees were prevented from expressing themselves, and now they've done it all and done it the way they wanted to.

Bonzai: They did have some great session players on their albums, though, didn't they?

Bronson: Sure, and they had guests like Neil Young, Stephen Stills and Buddy Miles. It's interesting that when they were actually allowed to play—on the third and fourth albums primarily—when they did record as a self-contained unit, they created some quality work.

Bonzai: Who got them back together?

Bronson: I think of myself as the catalyst, but as far as what they wanted to do in the studio, it's really them.

Bonzai: Have you heard any of it?

Bronson: I've heard rough mixes, and



The Monkees with Rhino's Harold Bronson

it sounds really good. But more to the point, it doesn't necessarily sound like The Monkees. It's accomplished musicians, compared to what you might expect The Monkees to sound like. Basically, it reflects 25 years or more of growth as musicians. It's not like it doesn't sound like The Monkees, though—it's The Monkees sound, but a bit harder. At the time of the first al-

bums, The Monkees sound had to be lighter to appeal to the younger kids and the television audience. As an example, the only old Monkees' song that they cover on this album is "Circle Sky," from the *Head* movie.

Bonzai: Since Rhino was founded, how many new acts have appeared on the label?

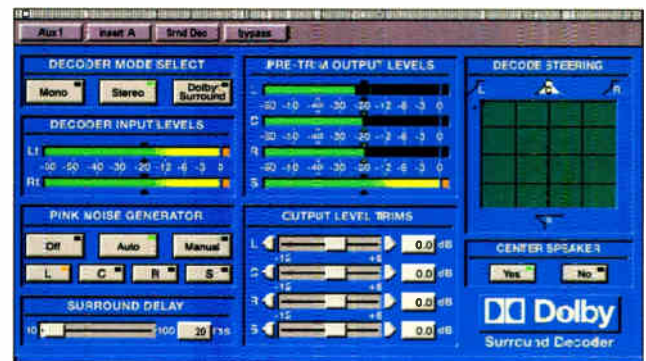
Foos: Around forty.

Surround them! with new Dolby Surround

- Digital implementations of Dolby Surround encoder and Dolby Pro Logic decoder processes
- Surround panners*
- Surround video game encoder and positioner functions
- Mono, stereo and Dolby Surround monitor modes
- Encoder and decoder TDM Plug-Ins available separately or bundled together

With Dolby Surround Encoder and Decoder TDM Plug-Ins, you can now produce surround mixes for videos, ad spots, multimedia, video games, and TV shows entirely within the Digidesign® Pro Tools® TDM environment. You can also preview the results of matrix encoding on four-channel material destined for use on film soundtracks ("4-2-4 monitoring").

*Number of panners depends on Pro Tools hardware configuration.



Dolby Surround Decoder TDM Plug-In

Dolby Surround TDM Plug-Ins provide all the functionality of Dolby's hardware products, plus additional features including surround panners and modes for video game developers. For example, surround game encoder and positioner not only make it possible to create sound effects for video games that players can move interactively, but for the first time allow for confidence monitoring of these effects.

Bonzai: Isn't it curious that a retro, re-mastering company would be launching new acts?

Foos: No, we actually started with new acts, mostly novelty artists. We just haven't been that successful with new artists, which is why you haven't heard much about it. The emphasis is on reissues, but we still release new acts when they really interest us.

Bonzai: Richard, weren't you previously a musician in a former life—bass player in a band with Harold?

Foos: Yes, we made one record, and Harold would attest I was the world's worst bass player. Wanting to be a musician came from the passion of how much I loved music.

Bonzai: Have you lost any of that passion?

Foos: No, not at all.

Bonzai: First a collector, you then opened a little used-record shop, and now you're an executive in a very well-respected recording organization. What did you learn from your scuffling days?

Foos: Just the basics of business. When I started, it was something to do and see what happened. I didn't have a clue about business, and Harold came in

and helped to organize it and started paying bills, which I didn't have any interest in doing. It was too much of a hassle to write checks.

Also, we got a feeling for the limitations of the record industry. We saw what all the labels were doing, and that's how we discovered the niches

**Just because
something charted
doesn't necessarily mean
that it was good,
or should be reissued.**

—Harold Bronson

that we could be successful in. We realized that none of the major labels were doing quality reissues or compilations, so the field was totally wide-open for us. From people coming into the record store, we learned a lot about what they were interested in and where the holes were in the industry.

Bonzai: Do you think of yourselves as archetypal eccentrics who connect with a vast and silent fringe that couldn't find its records?

Foos: I don't think it's a fringe. I think we both connected with different parts of our generation, and the next generation, in terms of what their passions were and how they wanted their music presented. We were kind of typical and felt that the records we liked would connect with other people and they would like them also.

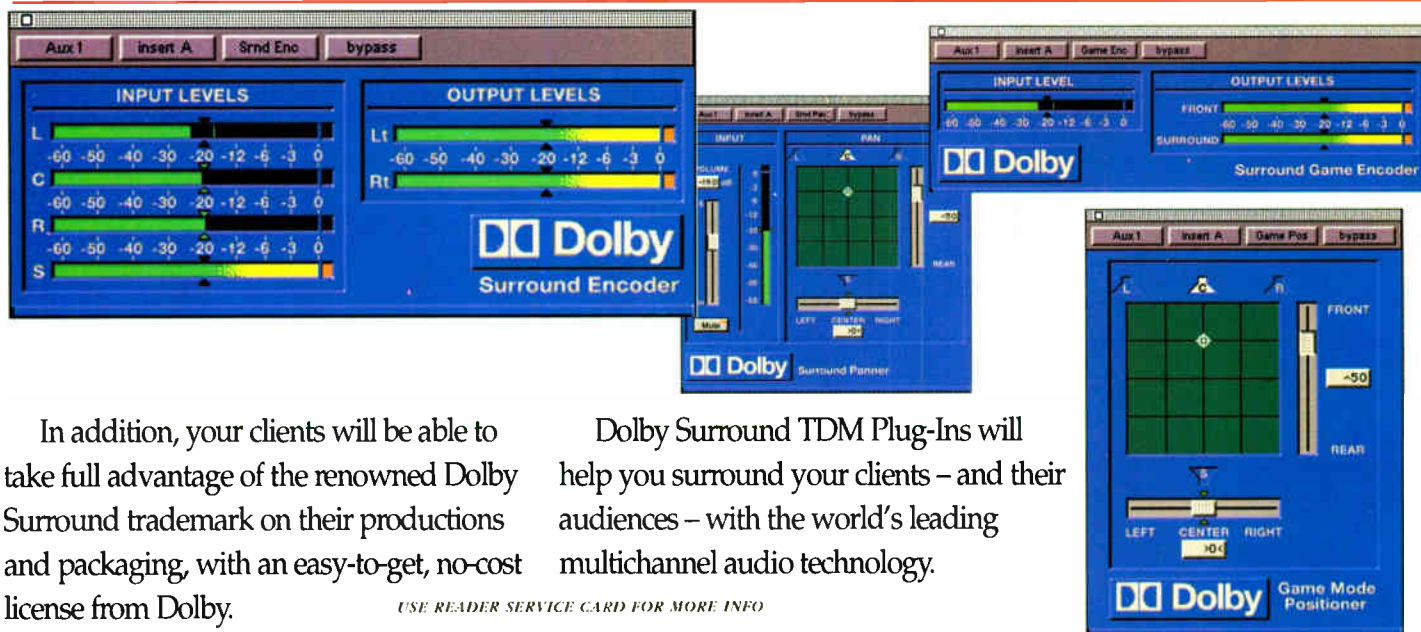
Bonzai: To me, it's like an oral tradition that might have been lost. To be able to share these records with the kids—"Gee, Dad's a nut!"

Foos: A lot of it would have been lost if we hadn't reissued these albums. And I think that Harold and myself are among the few doing this that weren't record executives in the '50s and '60s. We were passionate fans, and we lived through the era as fans. There are music fans who were born later that know a lot more about the music of the '50s and '60s than we do. But they're ten years younger, and they didn't live it. If they're working for Sony, they might put out a reissue of a band called The

—CONTINUED ON PAGE 338

TDM Plug-Ins

Dolby Surround Encoder TDM Plug-In



In addition, your clients will be able to take full advantage of the renowned Dolby Surround trademark on their productions and packaging, with an easy-to-get, no-cost license from Dolby.

Dolby Surround TDM Plug-Ins will help you surround your clients – and their audiences – with the world's leading multichannel audio technology.

USE READER SERVICE CARD FOR MORE INFO

Worldwide distribution by Digidesign. In the USA and non-European countries contact Digidesign (USA), telephone 415-842-7900, Fax 415-842-7999. In Europe contact Digidesign (England), telephone 44-1753-655-999

For information on Dolby Surround contact Dolby Laboratories Inc., 100 Potrero Avenue, San Francisco, CA 94103-4813, Telephone 415-558-0200, Fax 415-863-1373. Wootton Bassett, Wiltshire SN4 8QJ, England, Telephone 01793-842100, Fax 01793-842101, <http://www.dolby.com>. Dolby and the double-D symbol are trademarks of Dolby Laboratories.

©1996 Dolby Laboratories Inc. S96/111166. "Pro Tools" and "Digidesign" are registered trademarks of Digidesign, a division of Avid Technology, Inc.

SEE US AT AES BOOTH # 517

Dolby

FOLIO Notepad



IT'S NOT A TOY...

Spirit's newest micro mixer packs versatile professional features into the smallest package yet!

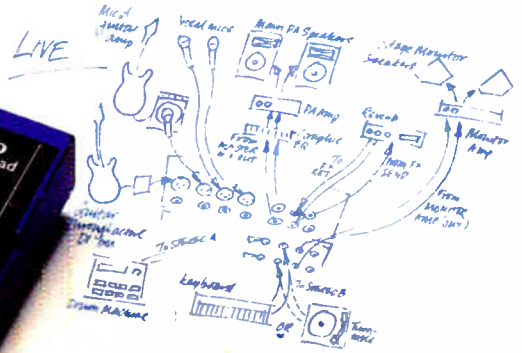
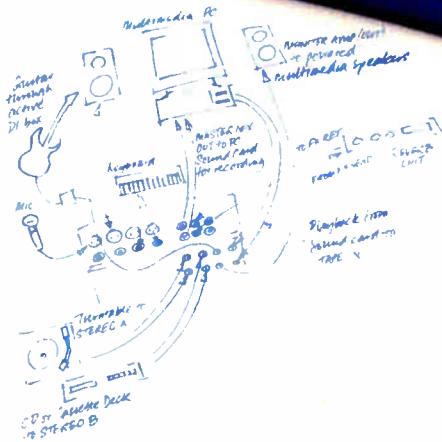
Unlike many small mixers, Notepad is no toy. It incorporates tried and trusted circuit designs and components used on our flagship mixing desks.

Folio Notepad is a compact DAT-quality 10 input stereo mixer that is flexible enough to be used in a wide variety of applications, either as the main mixer in small configurations or as a submixer in larger setups.



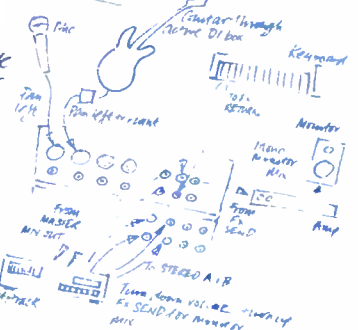
MULTIMEDIA

Recording and playback of music using a PC fitted with stereo sound card

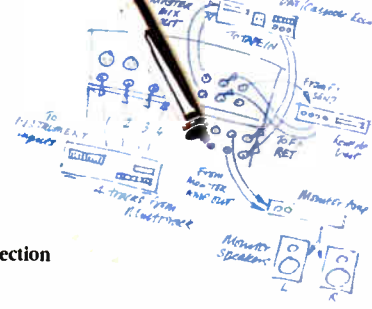


RECORDING TO MULTITRACK

Record up to 2-track tracks at once. Pan instruments to same side if they are desired for the track or Pan hard left and right to record on two separate tracks



MIXDOWN FROM MULTITRACK



PROFESSIONAL FEATURES

- 4 balanced Mic & Line inputs with 48v phantom power
- 2-band EQ
- 2 stereo inputs with switchable RIA A for direct turntable connection
- post fade effects send and stereo return
- separate Mix and Monitor outputs
- 2-track return
- headphone output
- compact size (approx 9" x 9" x 2")

PROFESSIONAL SPECS

- Mic input -128.5dBuEIN., +14 dBu headroom, 68 dB max gain to output
- Line input +30 dBu max input level headroom, 20k imp.
- Outputs +21 dbu max typical
- Noise -85 dBu typical
- Freq Response 20Hz - 20kHz
- THD <.0005% typical

- Home Studios
- Multi-media
- Small PA Setups: Bars, Schools, Places of Worship, Seminars
- DJ Mixing
- Personal Practice Mixing
- Video Post Production
- Sub-mixing
- Location Mixing



SPIRIT

By Soundcraft

A Harman International Company

At Spirit, sound quality is paramount and Notepad is no exception. But don't just listen to us - visit your Spirit dealer, listen to Notepad and judge for yourself.

Suggested Retail \$249.95

SEE US AT AES BOOTH # 928

<http://www.spirit-by-soundcraft.co.uk>

Spirit by Soundcraft™, Inc.
11820 Kemper Road
Auburn, California 95603
Tel: (916) 888-0488. Fax: (916) 888-0480

USE READER SERVICE CARD FOR MORE INFO

FOLIO

SPiRiT



THE FACTS
& no Bull!

At Soundcraft, designing the mixing consoles people actually want has been a serious business for over 22 years. We've listened to our customers - from budding musicians to world-renowned artists and sound companies - and we've built their wish-lists into our mixers. We don't hype our new features and we don't go in for gimmicks. When you listen to SX you'll realize we've listened to you.

**NO HYPE
NO GIMMICKS
NO BULL.**

FOLIO SX is a powerful, multipurpose mixer with DAT quality sound, housed in a freestanding frame with carry handle.

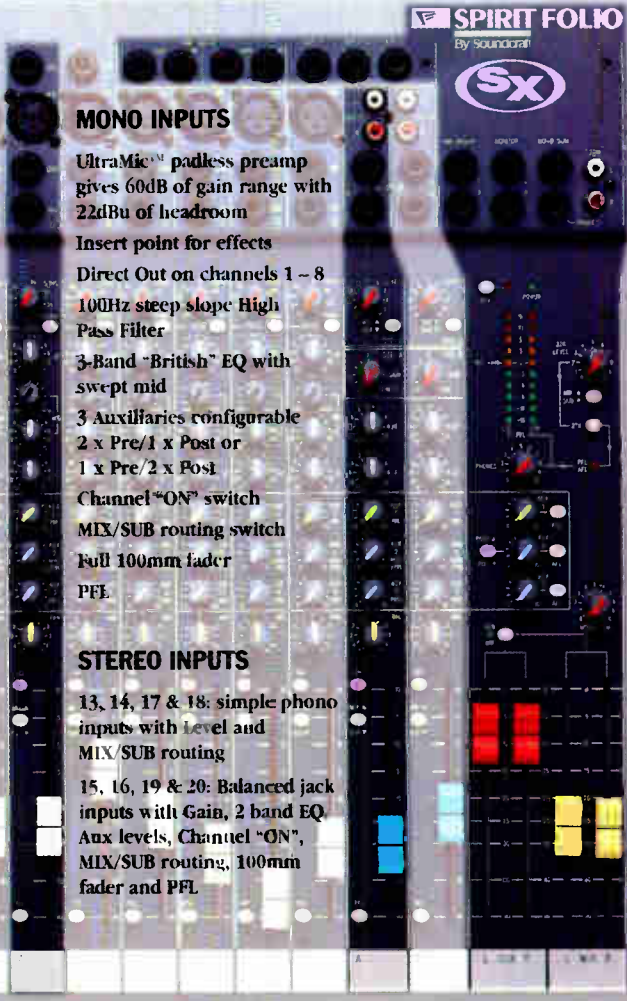


\$769.95

Suggested Retail in USA

- **20 inputs** (including 4 stereo channels) as standard, enough for most live and recording situations
- **12 mono inputs with UltraMic™ preamps** giving 60dB of gain range and +22dBu of headroom, allowing any mic or line device to be plugged in.
- **Two sub-buses** allow you to record groups of instruments to multitrack, send them to additional speakers, or sub-group to mix. SX also has a dedicated Mono Out.
- **8 Direct Outs** switchable pre/post fader, equally useful when recording in the studio or at a gig.
- **100mm faders** throughout
- **Real British 3-band EQ** with swept mid
- **18dB/Octave High Pass Filter** effectively reduces low end muddiness.
- **3 Auxiliary Sends**: 2 can be pre- or post-fader.
- **Custom-designed consistent controls** give an even spread of control around their sweeps.
- **Surface-mount technology**
- **Rack mount option**

SX's Direct Outs on the first 8 inputs are front panel switchable pre-fader for live track laying, or post-fader so you can "massage" recording levels in the studio.



MONO INPUTS

- UltraMic™ padless preamp gives 60dB of gain range with 22dBu of headroom
- Insert point for effects
- Direct Out on channels 1 - 8
- 100Hz steep slope High Pass Filter
- 3-Band "British" EQ with swept mid
- 3 Auxiliaries configurable
- 2 x Pre/1 x Post or 1 x Pre/2 x Post
- Channel "ON" switch
- MIX/SUB routing switch
- Full 100mm fader
- PFL

STEREO INPUTS

- 13, 14, 17 & 18: simple phono inputs with level and MIX/SUB routing
- 15, 16, 19 & 20: Balanced jack inputs with Gain, 2 band EQ, Aux levels, Channel "ON", MIX/SUB routing, 100mm fader and PFL

APPLICATIONS

LIVE SOUND
Bands, small venues, conferences, schools, places of worship

STUDIO RECORDING
Digital and analogue multitrack (4 & 8 track), small or home studios, pre-production, video post production

SUBMIXING

LOCATION SOUND

TYPICAL SPECIFICATIONS

Mic EIN	-129dBu
Crosstalk (1kHz):	
Channel Mute	<95dB
Fader Cutoff	<90dB
Frequency Response (20Hz to 30kHz)	<1dB
THD	<0.006%

SURFACE MOUNT TECHNOLOGY BREAKS THE BARRIERS OF FEATURES/PRICE

As one of the world's largest mixing console manufacturers, Soundcraft has invested in the most advanced production systems available. Leading edge circuit construction using Surface Mount double-sided glass epoxy PCBs means lower manufacturing costs without any compromise. The result, much more mixer for your dollar.

SEE US AT AES BOOTH # 928

<http://www.spirit-by-soundcraft.co.uk>

Spirit by Soundcraft™ Inc.
11820 Kemper Road
Auburn, CA. 95603
Tel: (916) 888 0488
Fax: (916) 888 0480



SPiRiT

By Soundcraft

■ A Harman International Company

Los Angeles

Recording

**THE
STATE
OF
THE
CITY
1996**

BY MAUREEN DRONEY

Here in the City of the Angels, we are getting reports that our battered real estate market is improving and that unemployment levels are inching downward. New retail businesses abound, and construction sites seem to be everywhere. So, is the economy of Southern California finally really improving? Or are these positive reports merely what one studio owner described as "the media just blowing smoke." We've paid more dues than most cities, from the 1992 riots to the 1993 fires and the 1994 earthquake, all the while fighting the effects of a nationwide recession that changed how we looked at our lifestyles and our ways of making a living. By 1995, things did seem to be getting better, to the point where some recording studios claimed to have had their best year ever.

1996 has brought the closing of several long-established facilities and the opening of no new major ones. In a search for trends, *Mix*'s survey of an admittedly small cross-section of the industry uncovered a theme that can best be summed up in one word: stabilization. As in, "Those of us who have made it this far feel that the worst is probably over, but, even if it isn't, we can handle it." For right now, for most studios, business is good.

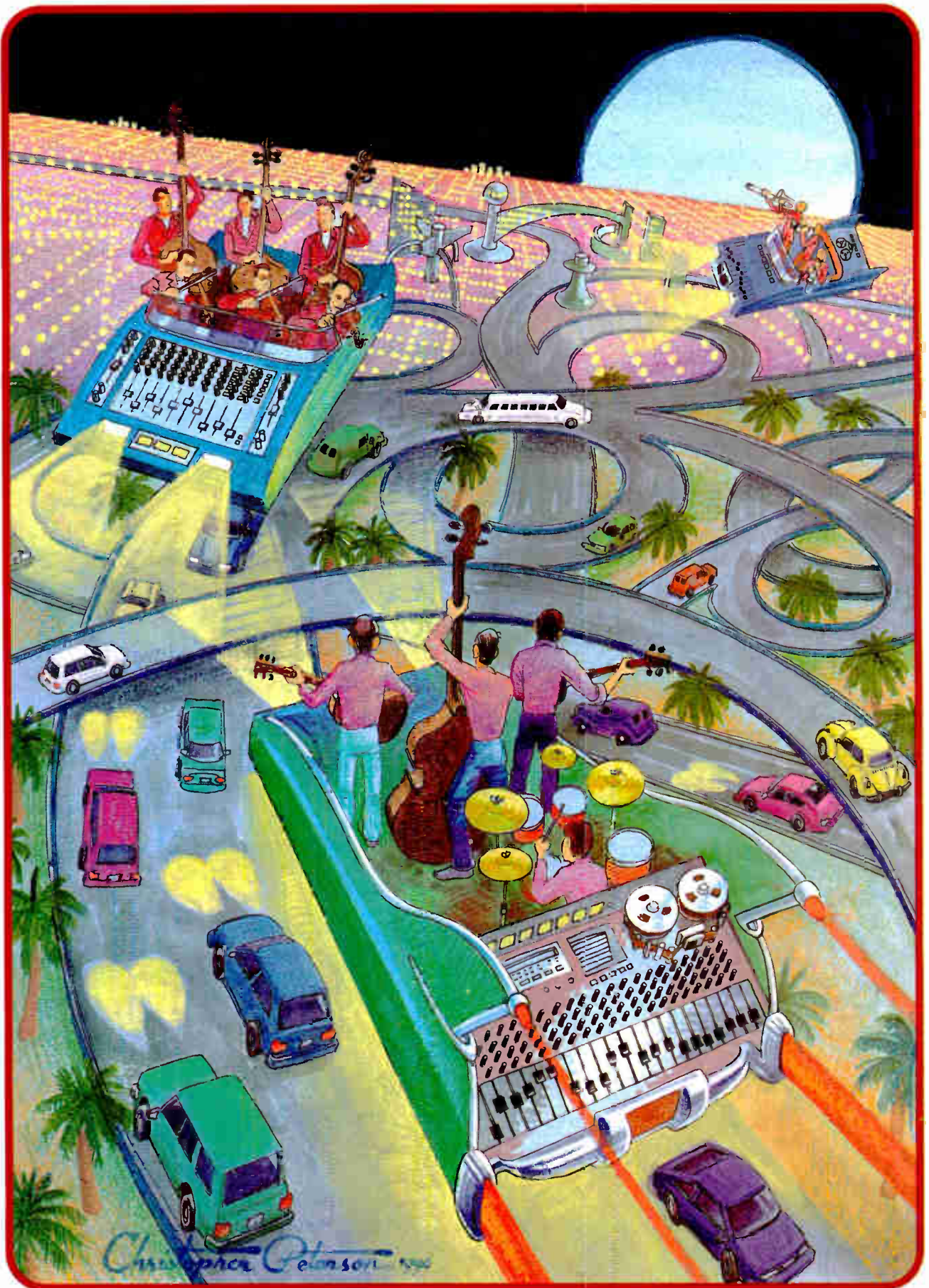
Ellis Sorkin runs Studio Referral Services. "I've been in business for 16 years," he says, "and this is the busiest it's been that I can recall. We've done more business up into August than we did all together in '94, the year of the earthquake. It's been nonstop. We've worked on Depeche Mode, Metallica, Tool, Social Distortion, one after another; we usually wouldn't, by August, have done 14 or 15 records. The majority of our business is in L.A. There are just so many good rooms here, and you get much better rooms for the money. I find New

York and Nashville rates to be higher, even though rates are now holding pretty stable here in L.A. The quake and the fires were long enough ago that things have settled out and people don't think about that stuff anymore; they are coming to L.A. again. And the fact that we've lost a few studios in the last year or two—even if they weren't the high-end places, they were large, and it had an impact. Devonshire, Milagro, Group IV and Hit City West are all gone. Devonshire alone had five rooms, and Group IV was, in its time, a major entity. Milagro was a strong, mid-level room, with a physically big tracking room, and its demise opened up business for other places.

"So, there is the combination of rooms closing and people being ready to come back to L.A.," continues Sorkin. "Then we have the rap scene that is promulgating a lot of music. Death Row Records is sometimes running five rooms at a time for different projects, often at least two or three at a time. There's also a lot of live music being recorded—most of the groups that we've been working with this year have been bands. The alternative market, beefed up by Alanis Morissette and other alternative acts doing so well at the Grammys, has really had an effect. The good live tracking rooms are very busy.

"And, maybe labels are starting to spend more money. There's still a lot of low-end stuff happening, but there are so many rooms that can accommodate them that it works. But we are also getting a fair amount of healthy budget stuff. People aren't paying what they were back in the premium days, \$2,800 or \$3,500 a day, but there are a fair amount of projects out there paying \$2,000 to \$2,500 a day. I still get small labels asking for silly things, like \$500 a day to make a record, and they

ILLUSTRATION BY CHRIS PETERSON



LOS ANGELES RECORDING

want to book it three months in advance! But nobody wants to do a deal like that, except rooms that are worth that. Or they want to spend \$800 a day and want me to book them into serious places! I have to tell them, it's busy out there, none of the studios are interested. I think a lot of people still have the residual thinking, from when it was slow, that they can get a great room for \$1,000. That's not happening anymore. There was a period of time, for six months to a year after the earthquake, in that year of nothingness, that big rooms were cutting wild deals. But they've gotten the rates back up. That's the other good part of this year—the prices are back up."

One of the studios that has benefited from the revival of live music is Sound City in Van Nuys. "We are having a very good year," says studio manager Shivan O'Brien. "And last year was incredible—we were booked 11 months out of the year. I'd say the economy is healthy. Every studio is different, but for us, our clients are old Neve Studer 800

fanatics. They do not like the digital world, and they don't like the new consoles, although *Mix* advertisers may not want to hear that. It's also made a difference that there are fewer studios—the market here was crowded with too many studios.

"At Sound City, we do pretty much all live music, with a couple of soundtracks, like the one Tom Petty did for *She's The One* and one we did for a movie with Michael Penn. But the trend in music has gone back to bands, with a lot more live drums and live tracking. This year we've had in Johnny Cash, Carl Perkins, Tom Petty, Weezer, Michael Penn, L7. The older studios, like A&M, Oceanway, Village and us, with the bigger tracking rooms, have come back. Whereas, in the late '80s we almost died. Rates are much more stable now. They really dropped down the last few years and studios were screaming, but now they've leveled off. It's true that \$2,100 a day is unrealistic for most places today, but I've run Sound City for five years, and I've raised the rates three times, and we're considered moderate. It was rough for a while, and some studios sat open rather than drop their rates. That's painful. But it helped to get

the rates back up, and now it's getting healthy again."

Everyone knows that home recording has changed the scene, and all studios have adapted in their own way to deal with those changes. "Almost everything we do has some home recording element," says Skip Saylor, owner of Hollywood's two-room Skip Saylor Recording. "Based on that, we purchased three ADATs with BRC, and are locking them regularly with 48-track 2-inch. All my vintage gear in both rooms comes in pretty handy, because transferring through our Neve 1073s puts some life back into those ADAT recordings. One of our regular clients, who mixes on the SSL, patches 15 Neves and eight APIs straight across his 24 channels of DA-88.

"You make decisions based on what your clients need," Saylor continues. "When I paid \$6,000 in 60 days for rentals of ADATs it wasn't hard to figure out that I should buy some. Actually, I'd already bought them; I just didn't have them! Now, I may not personally think they are the best, most high-fidelity thing to come down the pike, but that's not the issue. Customer service is the issue. I got a cappuccino machine be-

Sound better than you ever imagined...

Patented



104 Aphex Aural Exciter® with Big Bottom® - 2 channel



106 Aphex Easyrider® Compressor - 4 Channel



108 Aphex Easyrider® Compressor - 2 Channel

TUBESSENCE®

12AT7 - Used in 107 and 109
Contact Aphex for the full technical scoop.

104: Bigger, deeper, fuller bass. Extended, natural highs and greater presence. Get more sound from your system without increasing peaks. Individual tracks or an entire mix will "jump" from the speakers.

105: The Logic Assist makes this gate the most accurate and easiest to use in the world - no false triggering, clicking or chattering. The proprietary Aphex VCA 1001 ensures total audio transparency.

106: Invisible. This automatic compressor is so transparent that some people think it isn't working! Effortlessly maintain perfect levels without having to constantly adjust ratio, attack, release and threshold.

107: The award winning, #1 selling Tubessence mic preamp is the perfect marriage of solid state and vacuum tube circuitry. Upgrade the sound of all your mics with uncolored detail, presence and warmth.

These products are covered by one or more of the following U.S. Patent numbers: 4150253, 5359665, 5334947, 5450034, 5424488, 5483600.

cause people wanted caps and I was spending too much time sending runners out to Starbucks! We're a service business, and we give clients what they want. And then, we try to make it sound good too.

"My reason for having all the old Neve gear is not because the client asked for it, but because I know it sounds great. You marry the two equations, and you end up buying way too much gear for the amount of money you can charge, so you don't make as much money as you'd like, but you make better records. And if you are buying the right gear, you might not get buried in it. Meaning, to me, as much as possible, buy what they don't make any more. To me, 1073s are like land; there's only so much available. The old Neve gear doesn't help me get business, but it helps me keep business. Overall," he comments, "I say things are better. I'm making a living, a better living than two years ago. Money is changing hands again in L.A."

Along with running the studios, in the last year Saylor has found himself managing some up-and-coming engineers. "My theory," he explains, only semi-facetiously, "is that the music

recording industry is no longer controlled by artists, producers or record companies. The flow of sessions comes directly from the engineer. Record companies rarely book time. And often the engineer has even more power than the producer. You see, the record company signs an artist and says 'Make me a hit.' The artist turns on his heels and says to the producer, 'Make me a hit.' The producer looks at the engineer, 'Okay, make me a hit.' The engineer turns and has nobody—the buck stops with the engineer. The only thing the engineer can blame is the studio.

"Therefore, I'm now managing engineers. It's something I understand. I used to be an engineer, I know what they need to do their job. I know how to get them paid, I know their strengths and weaknesses so I can tailor them to projects, and I know how to be their psychologist because I know their anguish. I've been in that room too long many times myself. Really, I've been managing them unofficially for years, but now I'm actually calling it a profession."

Buddy Brundo, owner of Conway Recording Studios, has come to terms with the home studio issue also. Not

long ago he was known as one of the founders of HARP, and as a leader in that association's battle against home studios. He now says on the subject, "I don't really care anymore. Everything has stabilized now. If people want to record on ADATs, fine. And when they record on so many ADATs that they can't mix at their house, they come around. It still bothers me that [home studios] are not paying their fair share, and it still bothers me that I have city inspectors come in here and give me grief about the angle of the shower floor because somebody in a wheelchair might need to use it. But, from a business point of view, I don't really care, because I think that the quality is not there. There's a certain amount of people that are going to want to work in their homes, and the vast majority of legitimate people are going to want to work in real studios. It's a dead issue. We did our bit at a time when it was important, and it slowed it down a bit, but I think the limitations of what you can do at your house are apparent to people."

Ironically, Brundo now faces the matter in a different way, with a busy project studio operating close to his

...at a price you won't believe

~~\$795~~
NOW
\$449



107 Aphex Tubessence Mic PreAmp - 2 channel



Is there really a tube in there?

When Tubessence® was first introduced with the Model 107, some people had trouble believing that it was a real tube gain stage. Skeptics say, 'It's a tube simulator', or 'It's a starved-plate amplifier', or 'The tube's not in the audio path'.

The "Reflected Plate Amplifier" (US Patent #5450034) is a true vacuum tube circuit which has the desired characteristics without the heat, weight, fragility, sonic variability, short life and high frequency roll-off of conventional tube designs.

~~\$495~~
NOW
\$449



109 Aphex Tubessence Parametric Equalizer



NOW
\$449



105 Aphex Logic Assist™ - 4 Channel Gate

SEE US AT AES BOOTH # 430

APHEX SYSTEMS

Improving the way the world soundssm

11068 Randall Street, Sun Valley, CA 91352 U.S.A.
818-767-2929, Fax: 818-767-2641

108: The Wave Dependent Compressor simultaneously controls average and peak levels for the hottest tracks possible without the artifacts of other compressors. Finally, an 'auto' compressor that sounds better.

109: Got enough EQ? Two channels of fully parametric, two band, tube EQ, great for mastering or touch up. Track needs major work? Hit a switch and it's a mono four band. Unparalleled sound and flexibility.

Foreign patents issued or pending. Aphex, Aural Exciter, Big Bottom, Logic Assist and Tubessence are trademarks of Aphex Systems Ltd.

USE READER SERVICE CARD FOR MORE INFO
World Radio History

LOS ANGELES RECORDING

own home. "I have a major rapper two doors from me in the Hollywood Hills. He's a nice guy, but the traffic, and the noise—but what am I gonna do? I don't like the fact that I have people going in and out of this guy's house all hours of the day and night, and totally blocking the street up with cars. But it's like, 'Hey, you want to do that in your house? Beautiful, do it.'

"It's annoying as a neighbor, but, as I said, from the business point of view I don't really care because we're doing great. Rates are still not where they should be, but I can't complain. It's just a matter of how long it lasts and to be prepared for the next whatever. In California, you write a business plan and you never know, because how can you ever figure in an earthquake and a riot? But we're past that and doing well; there is a constant flow of people working. We are seeing more high-profile clients, more people from Europe and more people from Nashville. Right now we are doing Stone Temple Pilots, Lisa Stansfield, and we've also been doing

some new records for Dreamworks."

Brundo points out that technical requirements have grown in terms of expertise as well as hardware for studios. "We have to be able to provide the support to sync up anything to anything. We could be running 1/2-inch video with a 48 and a couple of ADATs, slaving off a DA-88. Lionel Richie was in and had two 48s, a 24, a bunch of ADATs and two RADARs all working at the same time, and switching back and forth. You have to have people who understand how to do that. The demands of late on a full-service studio have gotten much harder. You have to really be technically astute to keep it all together."

Gary Ladinsky, as owner of both the equipment rental company Design FX Audio and Design FX Remote Recording, and member of the SPARS board of directors, sees the studio scene from many different angles. About his own companies, he says, "We're doing fairly well, staying busy. We do have our ups and our downs, but our mainstay in rentals are 48-track machines, DA-88s, Dolbys, all those things, and some of the workstations are doing pretty well. We get a lot of people transferring to 48-track, because they are bumping up

from digital 8-tracks to sweeten or repair stuff. As for the other businesses I deal with, I hear some people say they are having the best year they ever had, and other people say, 'I'm dying.' What the difference is, I can't say. I know our truck has been slow, whether because there isn't that much live remote recording, or because people are doing it with DA-88's and a Mackie; I don't know.

"We had better months last year. It was a bit busier, but we are keeping up this year, although we did just recently reduce our staff. It's difficult, because we never raise our rates. We can never get more money for our rentals, and it's expensive to keep things going. So we have to come up with other ways to make money, which usually means making people work longer hours, or a little harder. But we're hanging in there. The majority of our work is in L.A., and the majority of our work is music recording studios. We have a lot of individual guys, home guys, that are clients, but that's not necessarily cost-effective. They may rent \$50 items, and we have to deliver it, pick it up, bill it—sometimes it's almost not worth it.

"So, we keep going, trying to make wise purchases. That's all I've ever

ZAP™

The ultimate archiving tool that was made especially for the compression of digital Audio:



- Loss-free compression and re-expansion of digital audio files
- No Phase Distortion or Frequency Deviation
- Typical file size reduction: 20 - 60 %
- Supports SDII, AIFF and Windows *.wav files
- Supports Mono/Stereo files
- Background Processing
- Simple Drag & Drop operation
- Multiple File Archiving
- Data Retrieval from damaged files



Whether archiving audio to optimize your hard drive space or preparing audio for transfer over the Internet, announcing the Zero Loss Audio Packer for Macintosh! Available NOW at fine Music and Computer Stores Worldwide.

Emagic Inc.
13348 Grass Valley Ave.
Grass Valley, CA 95945
Tel. +916. 477 1051
Fax +916. 477 1052

Emagic E-Mail
emagic@emagicusa.com
Emagic Web Site
http://www.emagicusa.com

All trademarks are property of their respective holders.

EMAGIC
Technology with Soul.

USE READER SERVICE CARD FOR MORE INFO

America's Fastest Growing Music Retailer

...for the third straight year!

— Source: Inc. Magazine Top 500

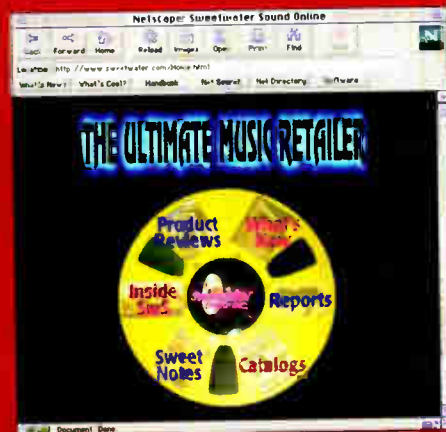
Sure, any dealer can sell you the latest MIDI instruments and recording equipment. Call them — they'll be glad to take your order (and your money). But only Sweetwater offers the kind of old-fashioned, personalized service you deserve from a sales staff that really knows their stuff. You also get dependable on-time shipping and technical support other dealers can only dream about, plus the industry's largest inventory in stock in our giant warehouse.

make the RIGHT CALL!

Sweetwater Sound first opened its doors in 1979. A whole lot of other music dealers have come and gone since then, but thanks to our innovative customer communications, affordable prices and friendly, knowledgeable sales engineers, we've grown at an astounding rate. We offer thousands of products from the best names in the industry, like **Korg, Roland, Kurzweil, Alesis, Digidesign** and **Tascam**, to name just a few. So if you're shopping for equipment, why not **make the right call** and find out why thousands of other musicians have made Sweetwater Sound their first choice for all their hardware and software needs?



You've seen our informative, full color ads for years. Now check us out on the Internet. It's the most comprehensive music site on the planet: "www.sweetwater.com"!



Over 100,000 musicians world-wide already get a copy of our exclusive Sweet Notes newsletter. Call us today to receive your free subscription!

(219) 432-8176

5335 BASS ROAD • FT. WAYNE, IN 46808 • FAX (219) 432-1758
sales@sweetwater.com <http://www.sweetwater.com>



CALL NOW! YOU MAY BE **PRE-APPROVED** FOR OUR LINE-OF-CREDIT ACCOUNT!
(Amount may vary up to \$50,000 depending upon individual credit history)

THE ULTIMATE
MUSIC RETAILER!

Sweetwater SOUND INC.

USE READER SERVICE CARD FOR MORE INFO
World Radio History

LOS ANGELES RECORDING

done, because I can't go out and buy every single piece of gear that comes out on the market. I wait for guys to call up and say, 'Hey, do you have the TC2000, or get this or get that.' When I know guys who have some ears and know what they are doing like to use a piece of gear, I'll purchase it. And we are working on expanding into film and post. We have two locations now, Culver City and our Burbank location, which is working out well. Currently I'd say half our business is in Hollywood,

25 percent in Burbank, 25 percent on the Westside."

The migration to East of Doheny that's taken place in the past few years has left The Village Recorder one of the very few Westside music recording studios. CEO Jeff Greenberg and studio manager Robin Bulla have been instrumental in reviving the three-room facility over the past two years, and they report a major increase in bookings.

"We've been busy almost to the point of burn-out," says Greenberg. "We've had a lot of album projects, tracking and mixing, and a lot of remixes—we just had in Babyface working with LL Cool J. One major change we

made is to put into Studio A, the old Steely Dan room, where there was previously an SSL, an unbelievably beautiful Neve 8048 with 72 channels of Flying Faders. It's an exquisite board, and it's become an instant hit—almost solidly booked. We also have ISDN capability through EDnet now—we just did a project with Amy Grant for her new album where she sent her mixes back to Nashville."

Village's concession to the project studio revolution has been the purchase of three ADATs. "We have our own ADATs, and we rent DA-88s," comments Bulla. "We do have a fair number of clients who are bringing stuff in and transferring up to complete their projects." Asked to explain the increase in bookings, she says, "I think for us it's been a word-of-mouth snowball effect. And, of course, we get a lot of the Westside business.

"We took over two years ago and recreated The Village as a top professional facility," adds Greenberg, "now the word is getting out. People who in the past thought it was funky here have seen that we've completely redone the studios. Also, having the Smashing Pumpkins' *Mellon Collie and the Infinite Sadness* record was great for us. People saw that it was mixed here, and a lot of the recording was done here, and people realized again that The Village is a great place.

"Another thing is, we now do a tremendous amount of music for video. I think, in general, all the professional music facilities in L.A. reap the benefit of the tremendous amount of production going on here. We see a direct correlation between video and film and the things happening in our studio. Right now we are working on the soundtrack for the Milos Forman-directed film about Larry Flynt that stars Courtney Love as Althea Flynt. Hole remixed a song here for *The Crow* with Pat McCarthy engineering, and we work a lot with composer Tom Newman and engineer Dennis Sands, the team who did the scores for *Shawsbank Redemption*, *Little Women*, *Unstrung Heroes* and *Phenomenon*. We also did a remix to picture for VH-1's Rolling Stones' video. Our engineers and maintenance people have become very seasoned doing these lockups, and I think that's a real strong point with our clients—that we can respond so quickly with such a minimum amount of setup and down time."

Maureen Dronoy is Mix's L.A. editor.

Infidelity?



Patch around limited console EQ's when tracking or mixing.

Use the five fully overlapping bands as creative or corrective tools.

Enjoy barely measurable noise & distortion.

Use wide bandwidths to enhance clarity.

Bask in the sunshine of affordability and buy a new mic with the money you save on this EQ.

Infidelity or hi-fidelity? You make the decision by choosing an outboard EQ that stands out from the rest. A product of meticulous engineering and exacting craftsmanship....the Symetrix 551E Five Band Parametric EQ.

This is not a copycat EQ. Our proprietary filter circuits reduce high signal level THD to less than .002%. Dynamic range exceeds 114dB. Direct coupled input and output stages add minimum components in the signal path.

As for the actual sound of our new EQ? It's as good as the best and better than all the rest. Listen for yourself. Choose hi-fidelity. Choose Symetrix 551E.

Symetrix

Lynnwood, WA, USA

TEL 800.288.8855/206.787.3222

FAX 206.787.3211

email 102102.1126@compuserve.com

Building great reputations.

Introducing the AT4041 cardioid capacitor microphone.

In just a few short years, 40 Series microphones have built great reputations for themselves, and for artists, engineers and producers. Which comes as no surprise, considering the 40 Series' record for superior performance.

It's also no surprise that the new AT4041 cardioid capacitor microphone continues this tradition of excellence.

With its state-of-the-art design and precision engineering, the versatile AT4041 delivers outstanding, consistent performance that is ideal for virtually every application from analog to digital, from studio to stage.

So call, write or fax today for more information on the new AT4041. Who knows? You might be surprised at what the 40 Series can do for *your* reputation.

Audio-Technica U.S., Inc.,
1221 Commerce Drive, Stow, Ohio 44224
330.686-2600 Fax: 330.686-0719
E-mail: pro@atus.com

Audio-Technica Limited,
Old Lane, Leeds LS11 8AG England
Tel: 0113 277 1441 Fax: 0113 270 4836



The new AT4041



audio-technica®

World Radio History



7

World Pacific History

MINUTES

SECONDS

FRAMES

0 019

0 022

0 025

0 028

STUDIO MAINTENANCE

SEX & DRUGS & ROCK & ROLL & CHAOS

Quick—name the most critical component in the recording chain!

Is it the console? Monitors? Microphones? Tape machines? Espresso machines? Whichever device tops your list, you probably assume that the device or system is working—we're talking about professional equipment here. But, as the laws of entropy decree, things tend to fall apart, and audio equipment is no exception.

However impressive its specifications when new, high-performance audio equipment that is no longer functioning properly can cause all kinds of unpleasantness. For the purposes of this article, then, the answer to the question "Which is the most critical component in the recording chain?" is thorough and continuing studio maintenance and repair.

To explore the world of studio maintenance, we spoke to a number of top maintenance engineers in Los Angeles. Our panel of experts includes Fred Boya, director of technical services at A&M Studios; John Musgrave, long associated with Conway and now owner of Musgrave Design Labs (MDL); Tom Herzer at Studio 56; Dave Hecht, chief maintenance engineer at the Record Plant; and Mike Morongell, vice president of engineering for the Record Plant and EFX.

PUNCH THE CLOCK

Not surprisingly, changes in the recording industry—new technologies, new production methods, new business priorities—have all had an effect on studio maintenance operations. The proliferation of modular digital multitracks (MDMs), in particular, brought repercussions in

at least two areas: studios that once had to cope with the occasional rented tape machine or extra piece of outboard gear are now constantly interfacing clients' and rented MDMs with the studio's core equipment. And the new generation of digital machines presents maintenance challenges and repair choices that did not exist a few years ago.

Interfacing outsiders' gear is no longer just a matter of hunting up the right cables and adapters. A thorough knowledge of clock and synchronization technology, which

may have once seemed merely useful, is now essential. "In the earliest days [of analog], if you were 'deep' you knew the Studer TLS

2000 synchronizer or the Audio Kinetics," says John Musgrave. "Nowadays 'not deep' is knowing the Lynx, the 24-tracks, etcetera. Deep cats know—intimately—all the submenus of the ADATs and DA-88s and all of the submenus of the 48-track and how they lock. So there's a whole new level that's beyond just electronics and fixing, to be a tech person."

Dave Hecht notes that by using MDMs, producers and musicians "are getting a lot more work done at home, [and bringing projects in] on ADATs or DA-88s, which often necessitates a more difficult, involved lockup. Unfortunately the knowledge of the proper way to use these devices doesn't come with the purchase. A lot of clients using them at home really don't fully understand some of the technical side of it. Things that are intended for video use [but] that were never video referenced create lock-up headaches in the studio."

BY CHRIS MICHIE

ILLUSTRATION BY WES GRISWOLD



THIS YEAR'S MODEL

Hecht also points out that clients who want to mix on an SSL typically don't want to use MDMs in the final mix session, and the necessary transfer to a 3318, for example, necessitates a format conversion. "The lowering of the cost of digital has actually created a lot of extra work," he says. "A lot of times the first thing we do in a session is transfers. We do what we have to do to get these things to lock. There's no set procedure." John Musgrave describes an increasingly common scenario. "At Conway...they're all coming in bringing these multiformat projects," he says. "Lionel Richie had RADARs, ADATs, 48-track, 24-track and a Pro Tools in there from time to time. So you have to know how to clock everything."

"And then you gotta be able to fix it all," adds Musgrave, who notes that the broadening responsibilities of the maintenance engineer have led to a two-tier system in some studios. "A lot of studios are having just one bench cat, real deep on the bench, and then system-level cats," he explains. "Because a deep cat costs a lot of money—getting up in the \$20-an-hour range and then some. A lot of places just have cats who are just sharp, in the \$15-an-hour-range, who can do the synchronizing and the hookups and can walk into the room and suss the problems when the tapes aren't locking up and that type of stuff. And it's really becoming more and more required to be able to do that type of stuff—automation bugs, synchronization—and less and less 'why doesn't this sound right?' or 'there's a channel missing in the console.' It used to be you had to suss out where you were losing the audio, patch around it, and get the session going. Now you have to come in and save the session *and* get the synchronizers to work."

Fortunately, the growing complexity of equipment interconnection possibilities has been matched by a new generation of more knowledgeable studio engineers. "The engineers who come in know so much more than they ever did before," says Fred Bova, attributing the trend to the rise of af-

fordable digital and the expansion of the consumer or semi-pro market. "They've got a real jump on it. It's not just a Tascam Portacassette or 4-track reel-to-reel in their living room that they've been playing around with. By the time they get into a studio and work their way up, they've already done some pretty serious stuff. A lot more people are rolling in their own computers...and doing Pro Tools or whatever—stuff that before was left to hired guns." Bova notes that even the second engineers and the runners are much better prepared for life in a professional studio. "They've got a really good hold on what it takes."

WELCOME TO THE WORKING WEEK

Based on Hecht and Musgrave's comments, one might predict rosy future career prospects for maintenance engineers who can both fix and interface equipment with multiple clock formats. But there are other factors to consider. Mike Morongell has been observing the scene at close hand since 1986, when he moved to California from Atlantic Studios, N.Y. "I've

they'll still work some ten-hour days, and six days sometimes, in the old days it was just insane. You were there all day and all night, and that's how it was; *and* you didn't get paid for it. When I was a young man the guy would pull out a drawer full of resumes and go 'Look, do you want the job, or dontcha?' Now, because quality people are harder to find, you don't find that. The level of awareness and understanding of the owners has improved greatly. It's no longer a bunch of cigar-chewing old boys with a drug habit, it's people out to make money. Before the rooms were going for two, three thousand dollars a day and it didn't cost anything. Now, they're only going for \$1,800 a day and it takes a lot more equipment, so the profit margin is a lot less, and the only people getting into it are either the crazies or the people who know how to run a business. Whereas, before it was strictly the crazies."

CLEAN MONEY

Musgrave notes that while economic realities may have modified the personality profile of studio owners, busi-

IN MANY WAYS, BENCH WORK REMAINS UNCHANGED, BUT THE CURRENT ENTHUSIASM FOR VINTAGE GEAR BRINGS ITS OWN MAINTENANCE HEADACHES.

noticed that as...the business has changed due to the record company budgets and policies changing, a lot of studios have gone out of business," he says. "Having a big technical staff has become a thing of the past. A lot of the bigger facilities have smaller technical departments, a lot of the smaller facilities use outside people—more and more studio people are now independent, the majority of them have moved to post, and a lot have moved out of the area."

Several of the interviewees commented on the difficulty of finding good people to hire for maintenance positions. Musgrave points out that this has improved working conditions. "It's becoming a lot more humane for the techs," says Musgrave. "While

business decisions in the MTV era have tended to emphasize the disparities in working conditions and salaries between audio maintenance engineers and their peers in post.

"There's no money for a record anymore, it's all for the video," says Musgrave. "They probably spend as much for three or four videos of a good album as they did for the album. With all the record companies being bought up by conglomerates and all the money being kind of pulled out of the bottom end of the record business and because of the proliferation of home studios, there's just no big money to be made in music anymore. So people are squeezed a little harder, and it's just creating a thing where you've got to treat the techs with re-

George Duke No Time To Waste



Working on projects with artists such as Natalie Cole and Al Jarreau, George Duke has built a reputation for producing superior sounding recordings. Now George uses his Euphonix CS2000's digital control to produce faster than ever, moving between projects and tracks quickly and accurately. Euphonix instant reset and dynamic automation maximize his creativity eliminating repetitive set up and remixing that slows the creative process.

"On any day, I might have to work on completely different projects, and when I am working within any project I move between songs constantly. Euphonix makes this wonderfully quick and easy by recalling and resetting everything on the console when you load a mix."

Euphonix SnapShot Recall™ resets Faders, Mutes, EQs, Dynamics, Pans,

Aux Sends, Mic pre-amps, and even external effects devices (via Midi program change).

"You pick up exactly where you left off," explains Duke,

"...that's the biggest plus of the Euphonix console - it lets me stay creative and not get slowed down by my gear."

The design of the CS2000 makes sense to Duke. "To watch graphically what is happening with EQ and Dynamics makes it easy to use. I can see what I am doing in relation to what I am hearing and, of course, the sound of the Euphonix Dynamics processor is extraordinary."

If you want to be working faster and sounding superior, contact the Euphonix office nearest you.

SEE US AT AES BOOTH # 1147

Headquarters (Palo Alto, West US)

220 Portage Avenue
Palo Alto CA 94306

Tel: (415) 855 0400

Fax (415) 855 0410

Los Angeles (West US & Int'l)

11112 Ventura Blvd
Studio City CA 91604

Tel: (818) 766 1666

Fax (818) 766 3401

New York (East US)

2 West 45th St Suite 605
New York NY 10036

Tel: (212) 302 0696

Fax: (212) 302 0797

Nashville (Central US)

1102 17th Ave Suite 202
Nashville TN 37212

Tel: (615) 327 2933

Fax: (615) 327 3306

London (Europe)

6 Berghem Mews, Blythe Rd
London W14 0HN

Tel: (171) 602 4575

Fax: (171) 603 6775



Euphonix

digital control audio systems
Web site: <http://www.euphonix.com>

SPECTRAL
A EUPHONIX COMPANY

Suppliers of digital audio workstations
World Radio History

Toll Free: 800 407 5832

Web site: <http://www.spectralinc.com>



spect or they go over to post. Post pays, and post has benefits, and post has sane hours, and you can actually go mountain biking on the weekends, you can go out at night and stuff like that. They're sucking off the good blood. Music people have to be a lot more competitive [to retain good techs.]" Mike Morongell confirms this view. "I had a hard, hard time finding people for positions here at the Record Plant and EFX," he says. "Good help is hard to find."

Fred Bova concurs. "To find someone exceptional in any field is difficult," he says. "Sometimes what you need is a real good tech, and you have to offer them hours that are not necessarily desirable. Not a lot of people like to work nights or weekends, but we find that offering a four-day work week can put the work-to-personal life ratio back in balance."

HIGH FIDELITY

In general, the interviewees confirmed the stereotypical image of the maintenance engineer's job: when not problem solving for clients and less technically gifted engineers, they spend much of their time "at the bench." In many ways, bench work remains unchanged, but the current (and undiminishing) enthusiasm for vintage gear brings its own maintenance headaches. Not only does older equipment tend to have a shorter mean period between failures, but it is often used in more critical environments than existed when it was first designed, which can prompt requests for modifications and performance upgrades. With so many pieces of new, middle-aged and positively antique gear in use today, maintenance engineers face quite a challenge when deciding how best to deal with a device that is malfunctioning—or just plain noisy.

Lack of documentation—schematics in particular—is a common complaint. Musgrave, whose company MDL specializes in Neve VR upgrades, notes that there is an increasing demand for service and repair on older digital devices. "Everyone loves the Eventide 2016—they won't let it die—and they're as in-

termittent as hell," says Musgrave. "At Conway we've reconnectorized with more modern connectors—the whole thing." Older AMS products are also popular, says Musgrave, but he notes that "Neve doesn't give out any of the schematics for the AMS products, and it's low on their priority list to repair those. Most people are left to fend for themselves, and that's a major pain because there's no documentation. At least the Eventide and other people give out documents. But you still can't find all the chips."

Musgrave points out that one of the reasons that maintenance and repair of vintage gear takes up such a large portion of his time is that current equipment is, in general, much more reliable. "The Sonys never break, and if the DA-88s break it's always the timecode card," he says.

However, thanks to the market success of MDMs, a whole new service industry is growing up to service, repair and upgrade these machines. As Tom Herzer says, "I've experimented with mods for ADATs and DA-88s but there are a couple of companies that do that so much better that I recommend them." And, as Hecht points out,

USER LIST

Mark Knopfler
Tina Turner
Sony Mastering
Jerry Finn (*Green Day*)
Larrabee Studios
Peter Gabriel
NRG Studios
Grant Headley
Noise Labs
The Tonight Show
Brian May
Sheryl Crow
Paul Weller
Simply Red
Pulp
Jay Rifkin (*Lion King*)
Walt Disney Studios
Roy Thomas Baker
Record Plant
Dire Straits
ZZ Top
Hootie & The Blowfish
Hank Williams
Island Records
Monty Python

joemeek *the word is out!*

Joe Meek's contributions in the mid 1960's revolutionized the recording industry and made him a legend. Joe's unusual production techniques pioneered the way music is recorded today. Now, 36 years later, Joemeek is making history once again. Find out why the industry professionals are calling the

new Joemeek products the most sought after retro devices on the market today. *Own a piece of history for yourself as these products are sure to become classics.*

I'm in Heaven, Michael Molinda - Electronic Musician July 1996
It's Spectacular, Zenon Schoepe - EQ, Full Review, December 1995



JOEMEER TUBE CHANNEL

Tube mic pre, mono Joemeek compressor enhancer and gain make up \$2499



JOEMEER STUDIO CHANNEL

Mono mic-pre, compressor and enhancer \$949



JOEMEER PRO CHANNEL

Mono mic-pre, compressor and enhancer \$499



JOEMEER STEREO COMPRESSOR

2 channel photo-optical sensing compressor \$1,999

DISTRIBUTED EXCLUSIVELY BY



Peninsula Marketing & Import Company 23773 Madison St. • Torrance, CA 90505 Voice 310 373 9129 Fax 310 373 4714 Email joemeek@amhsales.com



NOTHING ADDED NOTHING TAKEN AWAY

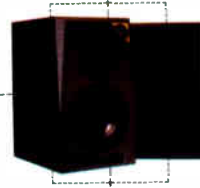


SEE US AT AES BOOTH #763

THE MONITOR SERIES



MODEL SA-300



MODEL SA-200



THE PROCESS FOR CHOOSING NEARFIELD MONITORS SHOULD BE EASY.

AFTER ALL, THEY ONLY HAVE ONE JOB TO DO.

THAT JOB IS MONITORING.

NOT ENHANCING, NOT DIMINISHING, NOT IN ANY WAY ALTERING THE SOURCE MATERIAL.

NOT SO EASY.

NOW SIT YOURSELF IN FRONT OF A PAIR OF SPENDOR SA MONITORS AND YOU'LL UNIQUELY DISCOVER A SOUND DEVOID OF THOSE ENHANCEMENTS AND CHARACTERISTICS OFTEN FOUND IN OTHER STUDIO MONITORS.

A NATURAL SOUND, UNCOLOURED AND ACCURATELY DEFINED EVEN AT 120dB SPL'S. - INCLUDING ALL THOSE ELUSIVE LOW FREQUENCIES.

YOUR SOUND, NOT OUR SOUND.

DESIGNED AROUND CAREFULLY MATCHED COMPONENTS, PERFORMING REGARDLESS OF ROOM ACOUSTICS WITH THE INCLUSION OF ACTIVE VARIABLE FILTERS ON THE INDIVIDUAL DRIVE UNITS ADJUSTABLE IN FINE 1dB STEPS, THE SPENDOR SA-200'S AND SA-300'S FAITHFULLY REPRODUCE YOUR SOUND.

THEY LOOK DYNAMIC AS WELL, WITH UNIQUE SCULPTURED CABINETS FINISHED AS THEY ARE IN LIGHTLY TEXTURED GREY. (NO PAINTED MULTI-COLOURED CONES TO DEGRADE AUDIO QUALITY IN THE PURSUIT OF BEING INDIVIDUAL).

NO, A PAIR OF SPENDOR MONITORS HAVE A JOB TO PERFORM.

AND THEY PERFORM IT EXCEPTIONALLY WELL.

NOW THE CHOICE CAN BE MADE. MONITORS WHICH MAY MAKE YOU SOUND GOOD, OR MONITORS WHICH TELL YOU HOW GOOD YOU SOUND.

YOU DECIDE.

DISTRIBUTED IN USA & CANADA BY: SASCOM MARKETING GROUP . TEL: +1 905 - 469 8080 . FAX: +1 905 - 469 1129 . WEB: www.sascom.com

MANUFACTURED BY: SPENDOR AUDIO SYSTEMS LIMITED; STATION ROAD INDUSTRIAL ESTATE . HAILSHAM . EAST SUSSEX BN27 2ER . UK. TEL: +44 (0)1323 843474 . FAX: +44 (0)1323 442254

USE READER SERVICE CARD FOR MORE INFO



"You're going to see more and more of what I refer to as 'disposable' technology. [With] DA-88s, after a point, it's almost more economical to buy a new one with the manufacturer's warranty. Plus they're easier to bring in to a service center—you can put] a DA-88 under your arm. It's pretty difficult to do that with an analog 24."

MYSTERY DANCE

Tape recorders have probably changed more than other studio equipment staples, but at least everyone agrees on what function the new devices perform, more than can be said for some exotic specimens of outboard gear. Twenty years ago, professional audio equipment manufacturers numbered in the dozens, and an experienced technician might be familiar with a majority of their products and their probable application. Without actually citing any hard numbers, it seems safe to claim that today there are more manufacturers making more devices for more applications than ever before. Studio

technicians who used to see a new piece of gear once a month may now come across them daily. Which brings up the question: "How do you know it's working properly?"

Though the Record Plant is not what anybody would call under-equipped, clients sometimes rent extra gear for a mix session. And when faced with unfamiliar equipment, Hecht often turns to the rental companies for help. "These people have seen virtually everything that comes on the market, so if it's something I have never seen before, and I have a couple of questions about it—the manual didn't come with it or it doesn't make sense—I just get on the phone and shout help."

"There's no doubt about it that the telephone is the tech's best friend," agrees Morongell. "The most important thing we do here, which I always stress to the technical people, is that you do whatever it takes to keep the session going. There's no excuses—if you don't know a piece of gear, take the time to try to figure it out, make a phone call, ask questions."

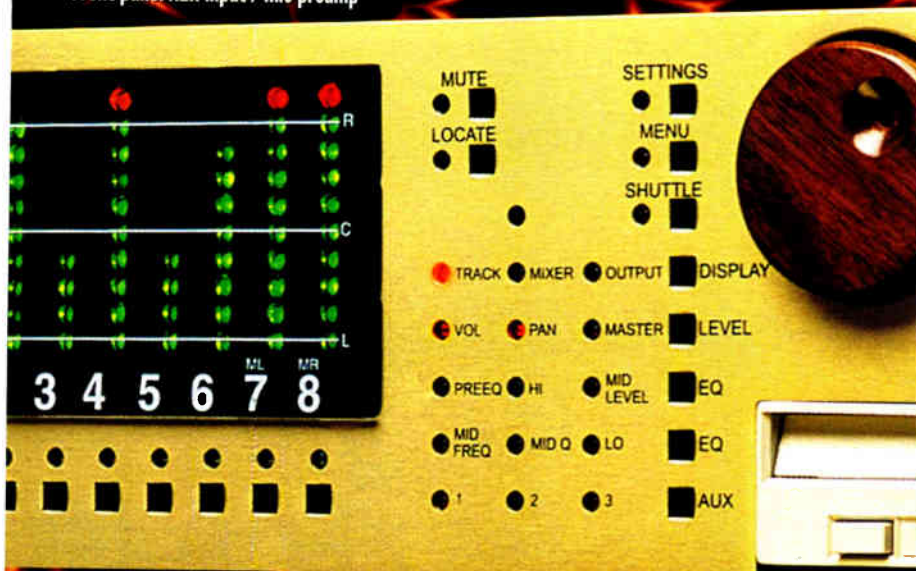
Fred Bova echoes Morongell's can-do philosophy. "It still takes the same skills," says Bova. "Five or ten years ago, there was new equipment coming in, you didn't have time to learn everything as the machine rolls in the door. It's still the same gig. It's a matter of knowing your rooms and being able to react quickly when unknown variables walk in the door...rentals come in, clients bring their own stuff."

**Now Record
Eight Tracks
Simultaneously!**

Vestax

Straight Eight. The New Vestax HDR-V8

- Simultaneous recording on all eight tracks
- Eight inputs / Eight direct outputs
- Eight Virtual Tracks!
- Processor Speed 300% faster
- Absolutely no Data Compression!
- Balanced TRS inputs & outputs, +4 and -10.
- Three auxiliaries per channel
- Built in digital mixer with 3 band EQ and fully parametric mids
- Front panel XLR input / mic preamp
- New easy to use menus
- Completely non-destructive (real time) editing
- One gig hard drive, user expandable to 4 gigs
- Optional DA88 and ADAT interface
- Optional SMPTE interface.
- Optional remote control (MX-1)
- Optional removable drives for data storage
- Lock together as many machines as you like.
- Suggested Retail: \$2495.00



SEE US AT AES BOOTH # 1319

Vestax Musical Electronics Corp.
2870 Cordelia Road, Suite 100
Fairfield, CA 94585
(707) 427-1920 FAX: (707) 427-2023

Vestax

NEAT NEAT NEAT

Without exception, those interviewed for this article were patient, courteous, thoughtful and, for want of a better word, reasonable. But they all warned to the subject when asked about their pet peeves. "Lousy tones, or lack of tones," says Hecht, pointing out that 20 seconds of tone is less than adequate. "Lack of proper documentation is what always stops sessions or slows them down," adds Bova. He notes that, far from eliminating alignment chores, digital tape machines require at least as much documentation as their analog predecessors. "It only takes about six seconds to write down the documentation on a Sony machine, yet we still get tapes that don't have tones. You can speed things up if you take a couple of seconds and write something on the box," he scolds.

Musgrave's pet peeve is "equipment

USE READER SERVICE CARD FOR MORE INFO

INTRODUCING THE LIBRA MUSIC CONSOLE

A NATURAL

The seventh sound wave has arrived. Libra is the new digital console from AMS Neve, with a straight ahead musical bias.



Fully automated and entirely digital, Libra takes the maestro features of its six predecessors and adds phenomenal musical ability, at a midrange price.

Worldclass technology designed and configured by those who write the digital score.

Sounds like you've got to have a demo.



AMS NEVE plc · UK HEAD OFFICE TEL: 44 (0) 1282 457011 FAX: 44 (0) 1282 417282 · GERMANY TEL: 49 (0) 6131 46282 FAX: 49 (0) 6131 42702
USA HOLLYWOOD, CA. TEL: (213) 461 6383 FAX: (213) 461 1620 · NEW YORK, NY TEL: (212) 949 2324 FAX: (212) 450 7339
CANADA RUPERT NEVE INC., TORONTO TEL: (416) 365 3363 FAX: (416) 365 1044 · e-mail: enquiry@ams-neve.com http://www.ams-neve.com

SEE US AT AES BOOTH # 3522

USE READER SERVICE CARD FOR MORE INFO



that was designed by people out of school. You often have to remove this to get to that." But Musgrave concedes that, in general, current equipment is typically easier to repair and service than some of the older pieces: "They're like onions—to get to anything you [have to] keep peeling back panels and circuit boards and connectors and covers." He credits the ergonomic improvements to economic pressures on manufacturers, which have led to single large motherboards and intelligent, automated assembly processes, which in turn ease maintenance. "You no longer have these assemblies that...are only built to go together and not be taken apart," he comments.

Morongell has the last word on pet peeves. "XLRs—pin 2 or pin 3 hot. Supposedly there was a standard de-

ecided on," he sighs. "It would be great if everybody standardized on a few things."

WAITING FOR THE END OF THE WORLD

As to the future? Herzer believes that the future is digital. "I think the new DACs will improve the way digital sounds," he says. "I see a lot of people working now on workstations. That's going to be very big. It'll shrink the size of a control room."

Musgrave takes on the curmudgeon's role. "Everyone's going to leave and go into post," he says. "The problem of finding good techs leaves you short on the humanpower list, so you need to apply your technicians differently." Musgrave predicts that more and more studios will contract out of house for repair. "People are sending their DATs out now, and people are going to start sending out a lot of their gear for repair to people who specialize in the tools and the technology."

Hecht foresees a move to "more freelance techs, with less staffers. Smaller studios can't afford to pay a real salary for a maintenance engineer." Morongell elaborates. "If you

want to be in the record business and want to be a studio tech that's great, but learn about the post business, and take a really good look at multimedia. The more things you can learn and know the more in demand you'll be in the different industries."

"I believe that no matter what happens in the future, if you're a tech, you have to have an understanding of troubleshooting," adds Bova. "I've seen people who are just brilliant electronic engineers, but you can have four things in a chain and they can't figure out what's broken, because they don't have the overall view of how to narrow down which stage has the problem. When you get right down to it, you need to do that to get the session back up online and everybody working. And when you get down to the component level you need the same skills." ■

Chris Michie's career in studio maintenance was mercifully brief. After wiring jack fields and pulling cables during construction at AIR Studios, he disgraced himself by adjusting the wrong azimuth nut on a Studer A62 and was quickly promoted to tape-op.

63 CHANNELS UNDER \$1000



Finally there's a quality UHF wireless microphone system, at a reasonable price.

The heart of our new system is the 411UDR, PLL synthesized, dual conversion superheterodyne, true diversity UHF receiver, with 63 user-selectable channels, balanced and unbalanced XLR and 1/4" outputs, tone squelch, output volume control, status LEDs and an optional rack mount kit. The 41HT handheld and the 41BT bodypack transmitters are frequency agile and utilize surface-mount technology for superior reliability. For under \$1000 Azden redefines the parameters by which cost effective high-band wireless will be judged.



CHARGE IT! The 41HT handheld can be used with either 2 AA alkaline, or, our exclusive rechargeable NiCad battery, and you can charge it with our optional (AMC-2A) charging station.

For literature, and specifications, write to:

AZDEN

147 New Hyde Park Rd., Franklin Sq., NY 11010
(516) 328-7500 • FAX (516) 328-7506

Distributed in Canada by Erikson Pro Audio

USE READER SERVICE CARD FOR MORE INFO

World Radio History

The Best

ULTIMATE SOUND - ULTIMATE CONTROL

SEE US AT AES BOOTH # 1023



Photo: PLIK Studios, Denmark

A growing legion of the world's top audio engineers choose the M5000 Digital Audio Mainframe with the ATAC Remote Control as their primary effects processor - for studio as well as live applications.



In comparing the wide range of effects and pristine audio quality of the M5000, they have found that no other signal processor comes close. Thanks to on-going software and hardware upgrades, the M5000 has

become the bench-mark signal processor for high-end audio. These renowned engineers know that the open architecture of the M5000 allows it to be continually upgraded and improved, making it the signal processor of choice

for today *and* tomorrow.

If you want to hear the ultimate in sound quality, call for the name of the TC dealer nearest you: 1-800-518 4546.

"Excellent sounding, easy to use, MIDI friendly, what more could anyone want."

J.D. Brill

"I like my mixes 3-Dimensional, Left, Right and Deep. With that in mind, the M5000 is one of the first tools I reach for."

Bruce Swedien

"The M5000 is the single most flexible tool that I have in my control room."

George Massenburg

"The M5000's ability to easily shape the reverb to match a real room is a valuable tool that I use on every session."

Al Schmitt

t.c. electronic
ULTIMATE SOUND MACHINES

FEATURES:

8 trk. simultaneous disk recording

Non-destructive editing

Multiple TAKE function

Expand to 128 tracks

Link up to 8 machines

You Could Always Hear What AKAI Did For Your Music . . .

Record/Edit

The new DR Series utilize our latest 24-bit internal processing technology enabling simultaneous 8-track recording with the transparent digital audio quality that has become an Akai trademark.

Three dedicated LSI's (Large Scale Integrated circuit) for recording, mixing, and optional EQ provide real-time performance and stability of operation that computer based units simply cannot provide.

Real-time random-access editing features like copy, insert, copy + insert, move, move + insert, erase, delete, slip, and sliptrack inspire creative efforts that are simply unthinkable with tape based recorders. The TAKE function allows you to record up to five separate takes of a critical solo, or enables you to compare separate effects treatments of a singular passage. The jog and shuttle wheels make finding precise edit points a breeze, while the familiar tape-machine style transport controls and autolocator make operating the DR Series recorders like working with an old friend.

DR8 - \$3495.00
8 Track Disk Recorder

Sugg. Retail Price

On 1992 we introduced low cost disk recording with our 4-track DR4d. Thousands of DR4d's have found their way into broadcast facilities, recording studios, post production houses, and project studios. Combining our experience with input from thousands of end users, we created the DR8 and DR16. Whether you're just starting out with your first 8-track, upgrading your current tape-based MDM, or even if you're planning on a double-whammy, 128-track, multi-interfaced, graphically-based, post production facility, the new DR Series from Akai will serve your needs and grow with you in the future. It's an important fact to consider when someone tries to sell you a "budget" digital recorder that never really meets your needs. Check out these features and you'll "see" what we're talking about.

MORE FEATURES:

18 bit ADC • 64X oversampling

20 bit DAC • 8X oversampling

24 bit internal processing

16 channel digital mixer

Dynamic MIDI mix automation

Built-in mic preamps

2AUX sends

109 point autolocator

AES/EBU and S/PDIF digital I/O

50 pin SCSI port



DR16 - \$4995.00
16 Track Disk Recorder

Sugg. Retail Price

EVEN MORE FEATURES:

Balanced 1/4" TRS in/out

Switchable +4/-10dB line levels

8 in 8 out + stereo master (DR8)

8 in 16 out + stereo master (DR16)

Media

The DR8 can be equipped with an optional internal 1 GB SCSI drive, while the DR16 is available with an optional 2 GB internal SCSI drive. The DR Series recorders are both equipped with a standard 50 pin SCSI port allowing a combination of up to seven SCSI drives with disk overflow recording capability. Lists of compatible drives are available from Akai product information.

Data backup is achieved through standard audio DAT or Exabyte.

At the time of this writing, the Iomega Company is preparing to go into production with their new 1 GB "JAZ" drive, a removable media SCSI drive which will greatly enhance the capabilities of our new DR Series recorders. Stay tuned for more info in our upcoming ads. Better yet, test drive a new DR Series recorder today at your local Akai dealer.

Now You Can See It.

Mixing

Some of our competitors' disk recorders use a portion of their recording LSI to provide mix capability. While this saves money, it can also produce audio artifacts like "zipper" noise when adjusting such critical functions like EQ, pan, and fader level. On top of that, many disk recorders won't even let you make real-time adjustments during mix down, eliminating a critical part of the creative recording process. The heart of the DR mixer is a 16-channel, 24 bit custom LSI designed to provide real-time dynamic digital mix capability. Built-in 99 scene snap-shot automation for all functions and dynamic automation via external MIDI sequencers, combined with 8 or 16 channel 3-band parametric EQ option, ensures that the only limit in the DR Series mixer is your imagination. With its built-in 16 channel mixer, the DR8 becomes the perfect compliment to any 8-track recorder you might currently own. It can mix down its 8 tracks of internal digital audio with an additional 8 inputs from a sampler, tape machine, or a live performance, all in the digital domain. The MTB mix controller provides a 16 track console format for dynamic remote control of all mix and EQ parameters.

OPTIONS:

SuperView™ SVGA card - \$699

ADAT interface - \$299

MIDI interface - \$299

S.M.P.T.E. read/gen - \$379

RS422 video sync - \$299

BiPhase film sync - \$299

2nd SCSI port - \$299

MTB MIX controller - \$799

8 channel 3 band parametric EQ - \$550

16 channel 3 band parametric EQ - \$699

SuperView™

We sort of went into a frenzy packing new features into our DR8 and DR16. When we stepped back to take a look at what we'd done, we realized we crammed a whole roomful of equipment into a single 5U box. In order to help keep track of everything that's going on inside our "studio in a box", we developed the SuperView™ SVGA monitor board. SuperView™ mounts internally in the DR8 or DR16 and provides envelope and track information for up to 16 tracks of audio, as well as region highlighting for record, playback, and edit. SuperView™ is further enhanced by 16 track level meters with indicators for left/right master out and aux 1/2 out. The time indicator will read in the same format as the DR front panel. SuperView™ requires no external computer, simply plug your SVGA compatible monitor into a SuperView™ equipped DR Series recorder and you're ready to go. SuperView™ enables real-time video representation of audio status; no waiting for screen re-draws. What you hear is what you see.

SEE US AT AES BOOTH #1019

ELECTRONIC
MUSICIAN
1996
EDITORS'
CHOICE

AKAI

DIGITAL

Akai Digital
1316 E. Lancaster Ave.
Fort Worth, TX 76102, U.S.A.
Ph. 817-336-5114
Fax 817-870-1271

Keyboard Interface

To increase the power of SuperView™ even further, we added an ASCII keyboard input to the SuperView™ card, allowing a standard ASCII keyboard to operate as a control interface for SuperView™ equipped DR Series recorders. Function keys will provide the ability to zoom in on a single track, as well as zoom in/out timewise for precise edit capability. All tracks and locate points can be named, allowing you to manipulate and track large amounts of data in a very simple manner. A unique interface has been developed to allow track arming, transport control, and edit functions directly from the keyboard, providing enhanced productivity through an intuitive human interface design.

USE READER SERVICE CARD FOR MORE INFO
World Radio History

(Monitor/Keyboard/Omega Drive and Batteries not included.)



TERMINATOR 2



John and Tony Miceli mixing the preshow queue-line audio



PHOTOS COURTESY OF SOUNDELUX MIX OF T2
AND UNIVERSAL STUDIOS FLORIDA

COMES TO UNIVERSAL STUDIOS FLORIDA

A 3-D FILM WITH 24-D SOUND

BY JOHN MONFORTE

HE'S BACK. BUT THIS TIME HE'S TAKING YOU WITH HIM.

Arnold Schwarzenegger, who catapulted to movie star fame with *The Terminator* more than a decade ago and then followed up with perhaps the most original and successful sequel ever, reprises his role, as do the other principal actors from *Terminator 2*. But there's a catch. This third (and we're told, final) installment will be seen on only three screens—albeit in three di-

mensions—and only at Universal Studios Florida.

T2 3-D, while not technically a "ride," was created on a scale like no other theme park attraction. James Cameron, creator of the Terminator films, agreed to direct and was given a budget comparable to that of a feature film. The whole project came in at \$60 million—\$23 million for the film alone—making it, per frame, the most expensive live-action film ever made. All of the *T2* ac-

tors were hired to film new footage to present a new 12-minute story written especially for the attraction. When making a feature film, you hope your production is special enough to encourage patrons at the local cineplex to choose it over one of many others playing on a Saturday night. In *T2 3-D*, the challenge was to create an experience that would attract people from around the world to Orlando, Fla.

If the creative ideal is to



have an opportunity to start with a completely blank piece of paper, this production was as ideal as it can get.

Even the theater building was designed with this, and only this, show in mind. The writers went beyond just "talking pictures" to create a total sensory experience for the audience. *T2 3-D* combines mechanical robots, live action, theatri-

benchmark for high-quality film sound. (For a closer look at the making of the *T2* soundtrack, see the September 1991 *Mix*.) In order to crank the quality up a notch for the Universal attraction, there needed to be some innovative ideas in both the production and presentation of the soundtrack. Universal/MCA looked to Soundelux Florida to create a unique sonic experience.

The sound team was headed by brothers John and Tony Miceli, part owners of Soundelux who have been combining their talents for many years. In this production, Tony was the sound supervisor and designer, and John handled the system concept and final mixing. On another day on another project, they might have assumed opposite roles; their broad backgrounds and flexibility have allowed one to substitute for the other when necessary.

Soundelux started work on the concept as early as 1992, when the project was first conceived. John Miceli describes how they sold their approach: "We want to prove that when you look at the cost of a project like this, the cost of audio is very reasonable. Whether in the system design or in the production of the track, it is very cost-effective when you consider what it gives you. I think that this production proves that more than any other attraction. We want to contribute to the guest experience by pushing the audio delivery to higher levels of excitement."

SYSTEM DESIGN

When contracts were signed in 1994, the system design began in earnest. "We approached the design of the sound system from the producer's point of view," says Tony. "We didn't design the array and then figure out how to put the soundtrack into it. We thought about what we wanted to do with the soundtrack and then considered what sort of system would be necessary to pull that off."

Audio is handled by a custom 24-channel playback system. Twenty-two channels contain full-range program, and the remaining two are used for low-frequency signals.



Arnold Schwarzenegger asks director James Cameron what to do with the skull of a terminator.

cal lighting and liquid nitrogen "smoke" via a sophisticated show control computer that executes more than 300 cues with split-second accuracy.

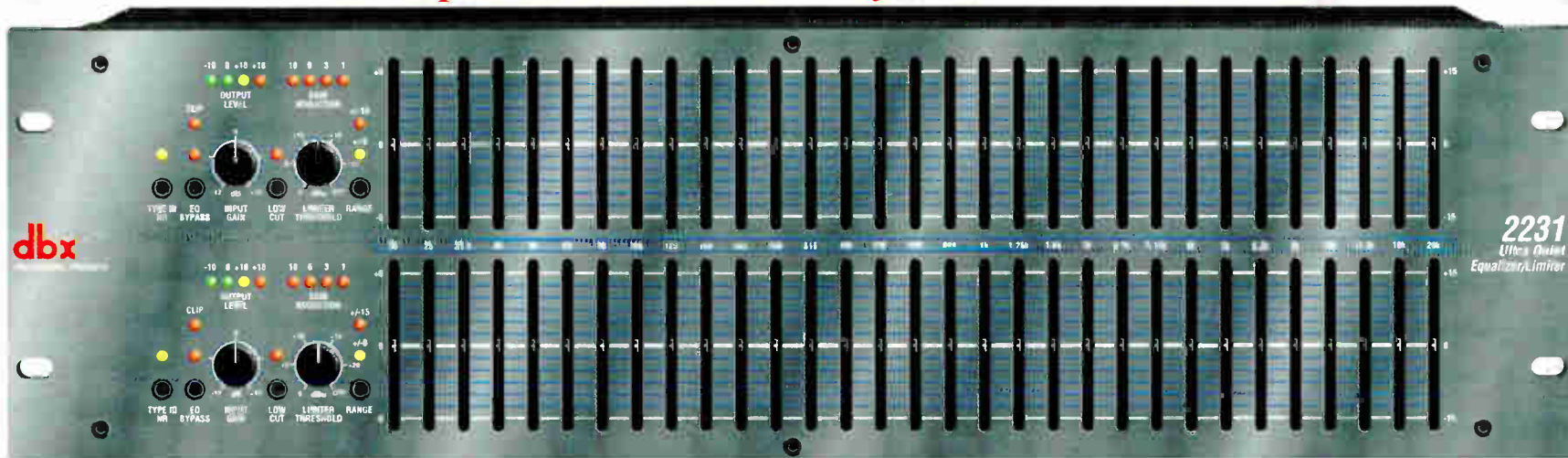
The theater contains three enormous screens, each illuminated by a pair of 65mm projectors. Polarized optical paths present the viewer with a deep and color-accurate 3-D image. During the show, some characters appear life-sized on the screen and actually pass through it to materialize live on the stage. In addition, the building is plumbed with liquid nitrogen and steam and belches out "smoke" in a variety of locations to provide effects that range from steam leaks to explosions. The auditorium seats drop on cue in the finale to mimic the implosion and disintegration of the ultimate explosion.

For quite some time now, the movie *Terminator 2* has been the



PHOTOS COURTESY OF UNIVERSAL STUDIOS FLORIDA

For 20 years dbx has been bringing you the finest equalizers, and revolutionary noise reduction



NOW YOU GET BOTH!

20 Series EQ's with dbx Type III™ Noise Reduction
Oh... and PeakPlus™ limiting too!

It's amazing. One little button. It has so much effect. The Type III Noise Reduction is an entirely new concept... virtually instantaneous encode decode *within the circuitry of the box*. We started out to build the finest EQ's possible, boxes with the heritage and performance to rival our famous 30 Series EQ's. And to no one's surprise they came out awfully darn good. (Ask to see the Audio Precision plots compared to the competition.) But then, Roger (our chief engineer, a nice guy, as far as engineers go) got the crazy idea of putting this new noise reduction stuff in the box. We listened to it and were amazed. The EQ's sounded great without it but *with it* the performance was nothing short of incredible. Check it out yourself and see.



But hey, Roger wasn't about to stop there. PeakPlus™ Limiter. Who knows more about limiting than the folks at dbx; nobody... that's who. So when the guys were developing this new series of EQ's they wanted something that would be unique to



these EQ's. That's when Roger got another one of his bright ideas and said "I bet they'll work a lot better if there's a cool limiter built in." Next thing you know, all the guys are in the studio amazed at the new limiter Roger had designed specially for the 20 Series. Once again, hearing is believing... With a threshold range of 0dbu to plus 20dbu, the PeakPlus™ limiter is designed to tame your program material from the subtlest nuances to the rowdiest hits. Also, the four stage LED ladder gives you a great visual indication as to what the limiter is doing.

20 Series EQ's. You used to have to settle for second best in a reasonably priced EQ but not any more. With the new 20 Series from dbx Professional Products you get a great EQ circuit, a graceful yet powerful limiter and the revolutionary new design of the Type III Noise Reduction. Check out the dbx 20 Series graphic EQ's at your pro audio outfitter. You'll see, with the 20 Series EQ's you get **MORE!!!**



PROFESSIONAL PRODUCTS

A Harman International Company

dbx Professional Products: 8760 South Sandy Parkway, Sandy UT 84107
Phone (801) 568-7660 • FAX (801) 568-7663 • email: customer@dbxpro.com
dbx is a registered trademark of Harman International



Save The Planet



It's The Only Planet We've Got.

SEE READER SERVICE CARD FOR MORE INFO

Thirty-six full-range speaker locations and five subwoofer locations provide the various imaging points in the house. Nine full-range channels are sent to nine discrete clusters placed three-to-a-screen across the front. Nine more clusters are above the seating area grouped in strips of three clusters per channel for left, center and right overhead channels. Two more clusters of one channel each are found along the rear wall. The remaining ten full-range clusters along the side walls are devoted to four channels. Each of the subwoofer channels is sent to a left-right pair of cabinets, each with one channel behind each of the screens, and the other at the rear of the house.

In a few instances, individual objects such as a motorcycle or live robot needed to make sounds that could be localized identically from all seats in the house. This required a dedicated speaker at the location of the actual object. So, the appropriate effects were burned into several Media Pro 2000 solid-state repeaters. When the designated timecode arrives, the repeaters



PHOTO COURTESY OF SOUNDELUX

trigger the sounds into dedicated amplifier/speaker locations. In the event that one of the robots is unable to perform (undoubtedly due to drinking too much hydraulic fluid the night before), their sound effects can be easily switched off when they are removed from the show.

Except for this handful of discrete sources, the bulk of the effects and all dialog and music are placed using a sophisticated 24-channel panning system. A Euphonix CS2000F console became an essential ingredient in the production process. Euphonix developed "the cube," which, among other things, enables any arbitrary panning scheme to be implemented. The design of the

speaker placement was sent to Euphonix headquarters in Palo Alto, Calif., where engineers calculated the complex pan scheme needed to divide the signal evenly throughout the array. The speakers were placed using lasers to align them accurately to the specified positions. Then they were tuned with a TEF analyzer so that levels matched within 1 dB at any seating position. The result is that a sound can be seamlessly steered around the room without ever having the sensation that there are only a handful of discrete points where the sound originates.

Some speakers, such as the overheads and surrounds, share the same signal but are directed to different parts of the audience. These speaker positions consist of custom EAW cabinets designed to Soundelux/Pelton Marsh Kensella specifications under the direction of Topper Sowden. Sowden and PMK partnered with Soundelux during the design phase to develop the in-theater system. "When we saw the challenge ahead to create a true multi-dimensional theater experience, we of

SOUNDELUX

**YOU MAY NOT HAVE HEARD OF THEM,
BUT YOU DEFINITELY HAVE HEARD THEM**

So you didn't know that Soundelux is one of the premier companies in special-venue audio? That is because you have probably heard of the company in association with one of the many other areas in which it is involved.

Soundelux began in film sound and is widely regarded for its major feature credits. Principal Lon Bender with Per Halberg won the Academy Award, British Academy Award and Golden Reel Award for Best Sound Effects Editing on *Braveheart*. Wylie Stateman, another principal in the company, was nominated for Best Sound Effects Editing on both *Born on the Fourth of July* and *Cliffhanger*. Soundelux was also honored with Academy Awards for Best Sound for *Last of the Mohicans* and *Glory*. Scott Gershin is their sound designer extraordinaire whose work can be heard in such films as *Born on the Fourth of July* and *JFK*. The latter earned him both a Golden Reel Award and a British Academy Award.

The company's Modern Music division is involved in music scoring and editing. *Forrest Gump* and *Ertseer* are some of the more notable examples. In fact, a great deal of Hollywood's products have been given the Soundelux touch in one form or another. You will find their work credited on last year's *Pocahontas* and this year's *The Hunchback of Notre Dame*. *True Lies*, *Sudden Death*, *Time Cop* and dozens more bear their signature, as well.

To be on the cutting edge of production techniques, highly specialized equipment is often required. The people



PHOTO COURTESY OF SOUNDELUX

Soundelux principals from the West and the East, clockwise from top left: David Kneupper, Wylie Stateman, Tony Miceli, Lon Bender and John Miceli. The Oscar for Best Sound Effects Editing on *Braveheart* sits on the console.

at Soundelux feel that sometimes the only way to get that equipment is to make it themselves. Their Audio Tracks division developed and manufactured a system called Advanced Data Encoding, which allows 35mm film editors to create EDLs for audio workstations. This won an Oscar in 1995 for Technical and Scientific Achievement. The company also has built a dozen other products that solve prob-

—CONTINUED ON PAGE 346

DIGITAL MASTERY

APOGEE'S AD-1000: THE PLATINUM EDITION



- Full 20-Bit Resolution
- Digital setup oscillator
- UV-22 Super CD Encoding and Soft Limit
- Digital pass-through with UV-22
- 8-channel ADAT® & DA-88™ interfacing*
- Phantom-powered transparent mic preamps
- PaqRat®-compatible 20-bit bi-directional interface
- Sync to ADAT, Video, AES, S/PDIF, Optical, Word Clock

*DA-88 interfacing available with the use of the FC-8 interface Unit included with the Platinum Edition. Trademarks and registered trademarks are the property of their respective owners.

THE APOGEE AD-1000 20-bit analog-to-digital conversion system was the result of years of development coupled with the practical, real-world experience of thousands of Apogee users.

Building on the success of the industry-standard AD-500E, the original AD-1000 included 20-bit capability; UV-22 encoding—the choice of the world's top mastering houses—to preserve 20-bit quality on 16-bit media such as Compact Disc; ADAT optical, AES and S/PDIF outputs; a digital oscillator; "analog-like" soft limiting; portable 12v operation; and transparent phantom-powered mic preamps.

Now there's the AD-1000 Platinum Edition, offering all these features, plus many more. Digital pass-through enables you to UV-22 process an existing digital signal. Full ADAT and DA-88 format inputs and outputs* enable you to hook up virtually any modular digital multitrack system.

The new PaqRat-compatible 20-bit capability allows you to record and play back 20-bit signals by using pairs of tracks on your MDM.

Never before has so much digital conversion capability been packed into such a small unit.

Experience the AD-1000 Platinum Edition at your Apogee authorized dealer.



SEE US AT AES BOOTH #1018

APOGEE
The digital masters.

APOGEE ELECTRONICS CORPORATION

3145 Donald Douglas Loop South, Santa Monica, CA 90405. Tel: 310/915-1000. Fax: 310/391-6262

E-mail: converters@apogeedigital.com Web: <http://www.apogeedigital.com/>

USE READER SERVICE CARD FOR MORE INFO



Left: the portable machine room of Tascam DA-88 record/playback units. Right: a bank of Lexicon LARCs, with a few of the predubs on DA-88 cassettes.



alone, which were also custom-built under the direction of Sowden.

The finished audio is played back from a 24-track Otari RADAR hard disk system. In case of problems, there is a backup array of drives available containing another copy of the program. The recorders are indirectly driven by the show control system via SMPTE timecode.

SOUND DESIGN

Production for the audio tracks began in March 1995 with the collection and design of various sound elements. Many units came directly from Gary Rydstrom, sound designer for *Terminator 2*. All the others needed to be developed expressly for *T2 3-D*, because new environments and characters were being introduced. Foley recording was done at the new Signet Sound studio in Los Angeles by Wylie Stateman, a principal at Soundelux's Los Angeles facility and a veteran of the feature film world,

course looked to Topper Sowden and PMK to help meet the challenge," says John Miceli.

Crossover functions, room tuning, limiting and inter-cluster delays are handled by what is probably the most extensive Peavey Media Matrix (for more on Media Matrix, see Computer control not rec'd title p.) system ever installed. The signals are then boosted by over 50 kilowatts of Crest CA Series amplifiers. Fifteen kilowatts are devoted to the McCauley subwoofer cabinets

and Dan O'Connell at One Step Up (September '96 *MIX*). All of the dialog was replaced, but, thanks to the short length of the film, a relatively small amount of ADR was required. Each actor's dialog was recorded at their convenience at various locations. An original score was written by *Terminator* and *T2* composer Brad Feidel and was recorded at his home.

The next step was to sync all the elements to picture. This was facilitated by a battery of 22 Tascam DA-88 multi-track recorders, which handled all the dubbing and mixing for the project. The DA-88s are becoming a standard of sorts among post facilities thanks to their timecode-friendly transports,

SSL E/G Console
NEVE Console
Digital and Analog
America's Largest Remote Audio Truck

Not Just An Audio Remote Truck...
But A Complete Facility

Sheffield
REMOTE RECORDINGS
13816 Sunnybrook Road
Phoenix, MD 21131
(410) 628-7260
FAX: (410) 628-1977

TECHNICAL EXCELLENCE & CAPABILITY
NOMINEE

USE READER SERVICE CARD FOR MORE INFO

World Radio History

Get 20/20 Vision.

Visualize this . . .

A monitoring system so good that it's easy to recognize the perfect detail of each sound.

Introducing the 20/20 *bas* system from Event Electronics.

20/20 *bas*

BIAMPLIFIED MONITOR SYSTEM

- Internally BiAmplified; **200W Total Power**
- **An Active Asymmetrical Fourth Order Crossover** that separates the line level frequencies prior to amplification
- **A 130 Watt Amp** that receives only the low frequencies and is designed to perfectly match the **3" Mineral Filled Polypropylene Low Frequency Driver**
- **A 70 Watt Amp** that receives only the high frequencies, designed to perfectly match the **1" Natural Silk Dome Tweeter**
- **A Large Diameter Low Air Restriction Front Mounted Bass Port** for full, accurate bass response
- An intelligent combination **XLR or 1/4" Input Connector**
- Continuously **Variable Precision Low and High Frequency Trim Controls**
- **Input Sensitivity Control** and **Clip LED Indicator**
- **Circuit Breaker** (no looking for fuses in the middle of the night)

It's easy to put the puzzle together when you can clearly see each piece. Seek out your nearest **Event Electronics** dealer and start your next mix with perfect sonic vision.

\$1000 per pair*

*Unpowered 20/20's available for under \$400 per pair.



ELECTRONICS INC

P.O. Box 4189
Santa Barbara CA 93140-4189
voice 805-982-6926
fax 805-982-3830

USE READER SERVICE CARD FOR MORE INFO

World Radio History

which have for the most part proven to be both swift and reliable. Three Future Equipment Design V-Mod 100 video recorders provided the images to the three screens. These magneto-optical recorders "wind" instantaneously and proved to be efficient replacements for the film projectors even through the final stages of the mix. The sound design was performed at the Soundelux facility in Orlando over a period of three months and resulted in more than 2,200 tracks on DA-88 source tapes, which were then premixed on-site down to 200.

Because of the unique nature of the project, there are no facilities available to screen a production such as this. Universal had to build a mock-up theater in an aircraft hanger in Van Nuys, Calif., to view the film edits and begin evaluating early audio decisions.

This was also the first opportunity to see how well the soundtrack worked with the story. Unlike a standard feature film, there are many more positions from which to present music sources. Some of the character themes, scored by Brad Feidel, move with the action. For example, small flying robots called mini-hunters zoom across the

screen and through the audience. They are represented by violin motifs that track their motion. Sparkling synth effects were written to envelop the viewers as they descend down an elevator to an immense subterranean control center that stretches out before them in all directions. One conclusion was readily apparent: Mixing the music would have to wait until the building was ready so it could be better integrated with the rest of the soundtrack.

In a project such as this, it is essential to make the final mix on-site—a method Soundelux has mastered over many such productions—and there are many reasons why this is so. First, there are no studios with monitoring for 24-channel program material. Even if a studio were equipped for such a mix, it would have a vastly different reverberation signature, and its inter-speaker delays would be much smaller. Since the presentation will be in only one space, there is no need to mix for some mythical "common denominator" as is done for theatrical releases. The result can be made exactly right for the auditorium.

Another advantage is less obvious. The Micelis found natural resonances in

the hall by sweeping tones in the system. Some frequencies rattled the light fixtures; others shook the sheet steel floor; still others vibrated the seats. By using these natural frequencies in the sound effects design, it was possible to exploit the natural resonant couplings of the speakers to the room elements in order to add effective sensations as well as new sound sources. As anyone who has dealt with resonances knows, if the right frequency is applied, very little energy needs to be expended to get things moving. When watching the program, it is awe-inspiring to consider that the room is being shaken by just a few pounds of paper and wire flapping in the air. Surely, many people will think that there is some mechanism vibrating the seats.

There is a down side to mixing on-site. Because the theater was still under construction, other workers needed building access to do their jobs. Since construction contractors work by day, most of the post-production work moved to the graveyard shift. Still, there would always be someone off in some corner hammering away while the mix took place. John Miceli remembers, "We had to be as accommodating as possible

True Tubes

SEE US AT AES BOOTH # 102

TUBE-TECH LCA 2B STEREO COMPRESSOR AND LIMITER



Tube-Tech stands for uncompromised Danish design philosophy and craftsmanship. True to its heritage, the LCA 2B Stereo Compressor and Limiter has 100% transformer coupled circuitry and tubes that deliver the unmistakable sound of high quality vintage equipment.

The LCA 2B is a two channel unit with independent compressor and limiter for each channel. It boasts the best technical specifications such as a Frequency Response of 5 Hz to 50 kHz and a Noise Level of less than -85 dBu.

Tube-Tech...in a class by themselves. For a dealer near you, call 1-888-4WARMTH.

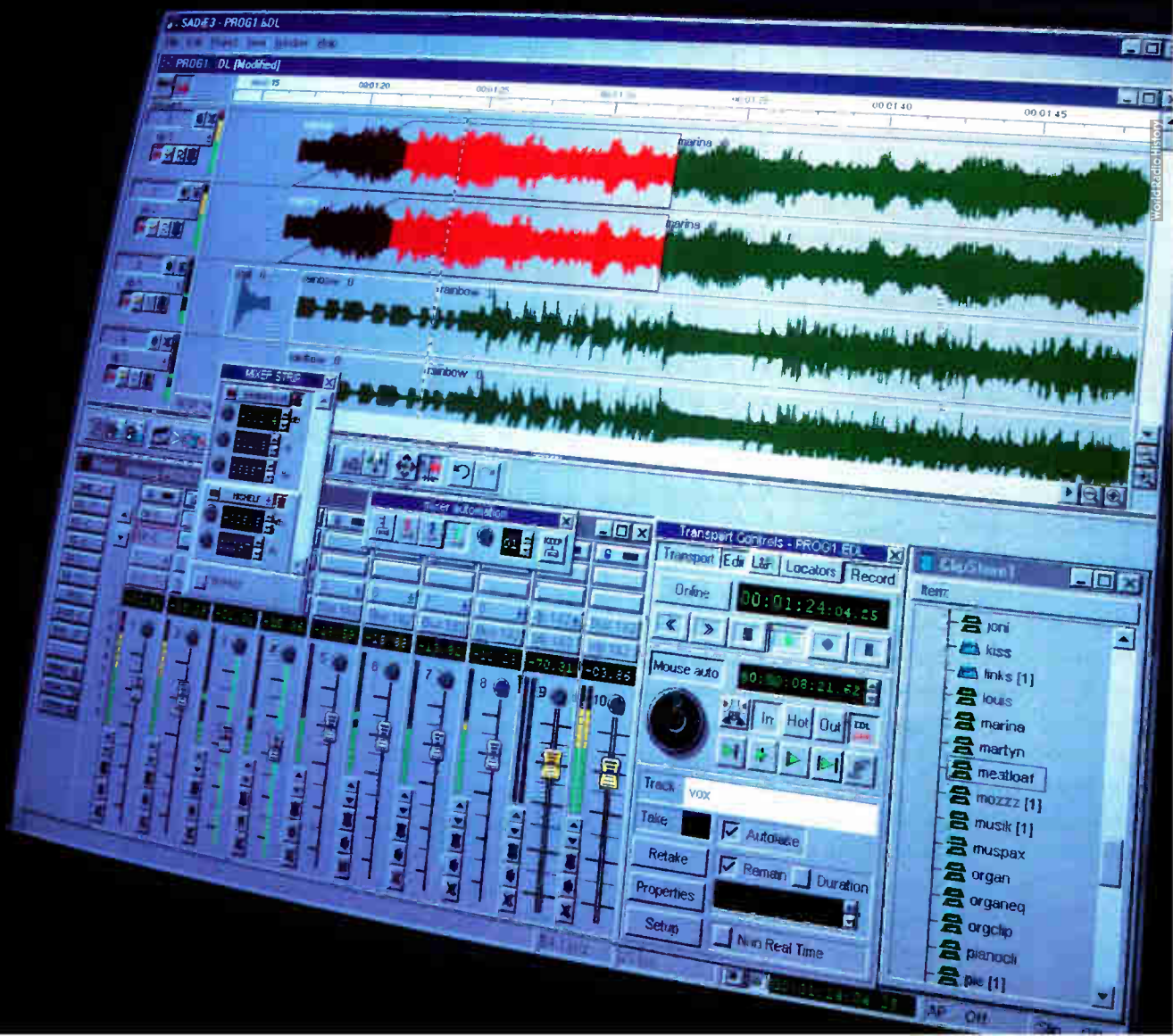
Distributed and supported by:

t.c. electronic
ULTIMATE SOUND MACHINES

409



Product Catalog





SADiE Inc.

STUDIO AUDIO & VIDEO LTD
MANUFACTURE DIGITAL AUDIO
AND VIDEO SYSTEMS WHICH
ARE USED IN THE FOLLOWING
APPLICATIONS:

RADIO PRODUCTION
FILM & TV POST
PRODUCTION
PRODUCTION
CD MASTERING
TELECINE SOUND TRANSFER
MUSIC EDITING
TAPE DUPLICATION
SPEECH EDITING
EDUCATION
MULTIMEDIA

STUDIO AUDIO DIGITAL EQUIPMENT INC.
1808 WEST END AVENUE
SUITE 1119
NASHVILLE TN 37203

PHONE 615 327 1140
FAX 615 327 1699
[HTTP://www.sadieUS.com](http://www.sadieUS.com)

STUDIO AUDIO & VIDEO LTD
THE OLD SCHOOL, STRETHAM
ELY
CAMBRIDGESHIRE
UK
CB6 3LD
PHONE +44 (0)1353 648 888
FAX +44 (0)1353 648 867
[HTTP://www.sadie.com](http://www.sadie.com)

STUDIO AUDIO DISTRIBUTION IN
EUROPE GMBH
VILLA LEINEN
KOLLWITZ STRASSE 16
73728. ESSLINGEN
GERMANY
PHONE +49 (0) 711 3969380
FAX +49 (0) 711 3969385

*If you are interested in joining
an independently maintained
forum about SADiE and
related products on Internet,
you can subscribe by simply
sending an email message to
this address:*

majordomo@lists.ioregon.edu

*Type the following command
as the body of your email:*

*subscribe sadie
end*

*Upon sending this message
you will receive a welcome
message confirming your
subscription. The new
messages from the list will pop
up each time you access your
email. SADiE customer
support will monitor the
correspondence and reply
when necessary to advise on
any subject.*

*If you are not yet a SADiE
user you are still welcome to
post messages to the forum
should you wish to contact
other SADiE users.*

World Radio History



Nashville skyline from SADiE Inc.

**STUDIO AUDIO DIGITAL
EQUIPMENT INC. (SADiE INC.)
WAS FORMED IN JANUARY 1994
TO PROVIDE SALES, DISTRIBUTION,
AND CUSTOMER SUPPORT
THROUGHOUT THE US FOR THE
WORLD FAMOUS SADiE DISK
EDITOR.**

**BASED IN NASHVILLE TENNESSEE,
JUST BLOCKS FROM HISTORIC
MUSIC ROW, SADiE INC.
SUPPORTS A NETWORK OF
DEALERS THROUGHOUT THE
UNITED STATES**

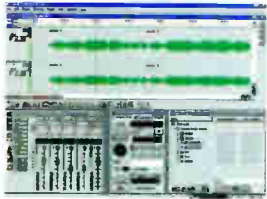
**THERE ARE NOW OVER 2000
SADiE USERS THROUGHOUT THE
WORLD.**

Studio Audio UK



Company profile

SADiE3



Operating software

SADiE3 IS THE NEW, GROUNDBREAKING SOFTWARE FROM DIGITAL AUDIO EDITING SPECIALISTS STUDIO AUDIO & VIDEO LTD.

THE RESULT OF MORE THAN 15 MAN YEARS OF DEVELOPMENT, THE SOFTWARE MARKS A TURNING POINT FOR THE PROFESSIONAL AUDIO EDITOR.

SADiE3 IS A NATURAL PROGRESSION FROM VERSION 2.2 – EASIER TO USE AND MUCH MORE POWERFUL!

A COMPLETELY FREE UPGRADE FOR ALL SADiE USERS, THE NEW SOFTWARE IS DESIGNED TO WORK ACROSS A VARIETY OF DIGITAL AUDIO PLATFORMS MANUFACTURED BY STUDIO AUDIO.

NOT ONLY DOES SADiE3 ADD FEATURES IT ALSO INCORPORATES KEY ADVANCES IN SOFTWARE OPERATION.

UNTIL NOW THE POWER OF DISK EDITORS HAS BEEN LIMITED BY THE RIGID ALLOCATION OF PROCESSING POWER. SADiE3 OVERCOMES THAT LIMIT WITH DRD : DYNAMIC REALLOCATION OF DSP.

IN SADiE3 DSP POWER IS ONLY ALLOCATED TO A PROCESS (REAL-TIME EQ, DYNAMICS ETC.) FOR THE TIME THAT THE PROCESS IS IN USE. SADiE3 CAN THEN REALLOCATE THIS POWER TO OTHER PROCESSES ALLOWING MAXIMUM USE OF THE DSP.

DRD in use

BACKGROUND PROCESSES – REALLOCATION OF THE DSP POWER ENABLES THE USER TO CHOOSE A BACKGROUND PROCESS WHILE WORKING IN THE FOREGROUND.

RECORDING IN THE BACKGROUND, ARCHIVING, RESTORING OR EVEN AUTO-CONFORMING IN THE BACKGROUND ARE ALL POSSIBLE.

REAL-TIME PROCESSING – SADiE3 EMULATES THE FAMILIAR TAPE RECORDER AND MIXING DESK ENVIRONMENT. ALL DSP FUNCTIONS WITHIN THE USER-DEFINED IN-LINE MIXER STRIPS OCCUR IN REAL TIME.

MORE STREAMS FOR PLAYLIST EDITING – DRD INCREASES THE NUMBER OF PLAYBACK STREAMS, EACH WITH REAL TIME PROCESSING.

UNLIMITED VIRTUAL STREAMS – SADiE3 ALLOWS ADDITION OF STREAMS IN THE PLAYLIST.

New features

AFI - AFI (AUDIO FORMAT INTERCHANGE) MAKES SADiE3 THE MOST OPEN-ARCHITECTURE AUDIO SYSTEM IN THE WORLD. MORE THAN A METHOD OF FILE EXCHANGE, IT IS A WAY OF MAKING OTHER AUDIO FORMATS COMPLETELY TRANSPARENT WHEN USED WITH SADiE3.

AFI ENABLES SADiE3 TO READ AND WRITE TO ALL MAJOR MANUFACTURERS AUDIO DISKS WITHOUT ANY PRIOR FILE CONVERSION, INCLUDING DISKS WHICH ARE USED BY NON-LINEAR VIDEO EDITORS.

General

- 8, 16, 18, 20 & 24 bit capability
- background recording (multi-tasking)
- waveform and scrub editing in the playlist
- unlimited virtual tracks
- clip based automation of level, pan, eq, dynamics
- real-time eq, dynamics in mixer
- project and user management
- TimeSync timecode management
- Windows 95 compatible
- free software upgrades for the lifetime of the product

Playlist

- optional display of profiles in the playlist
- on-line editing of the audio profiles in the playlist
- scrub editing in the playlist
- group clips
- name streams
- unlimited number of virtual streams in EDL
- optional overlay of editable mixer automation data
- playlists may be set to perform background tasks such as background recording

Mixer

- real-time equalisation, dynamics
- auxiliary sends & returns
- mixer configurable to the user's or project's requirements

Transport

- machine control of multiple playlists and on-line external equipment via SONY 9-pin protocol
- scrub to picture (via 9-pin control)

Toolbars

- user definable toolbars can be placed anywhere on the screen or attached to specific windows
- toolbars are modifiable to add facilities or remove unwanted tools

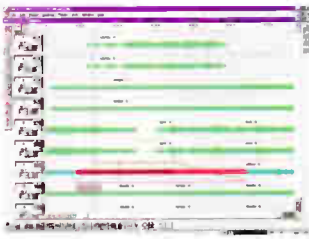
Routing

- routing of signals between the playlist (virtual tape machine) the mixer, and the channels and groups within the mixer

Project Management

- all tracks, EDLs, clipstores, mixes, PQ data, auto-conforming data, etc., can





- be kept within a project
- projects can be backed up, restored, deleted and copied in batches
- audio libraries with full search facilities

Background Processes

- background recording (e.g. for the upload of DAT tapes, etc.)
- background auto-conforming (e.g. for uploading film sound)
- background backup (e.g. continuous backup to Exabyte)
- background restore (e.g. uploading next project during session)

Signal Processing

- all signal processing may be performed in real time
- eq options include full parametric, shelving and high/low pass filters
- dynamic range controls include compressors, gates and expanders
- channel strips may contain any combination of in-line eq and dynamics modules
- mix automation of all in-line processes

Timestretch

- SADiE3 will incorporate new timestretch and pitch shift algorithms

PQ Editor

- SADiE3 extends the facilities of the PQ editor, which includes the ability to create DDPs as a background task while editing a new project in the foreground

AutoConform

- import and export of all major EDL formats
- AutoConform can be designated as a background process

Noise Reduction

- SADiE3 will optionally include 'De-Noise' - real time de-noising algorithms designed for SADiE by CEDAR

OMF

- full OMF compliance will be implemented in SADiE3.1

Windows 95

- SADiE3 is designed to be fully compatible with the Windows 95 operating system

SADiE3 WILL ALSO SUPPORT FILMWAVE, A JOINT PROPOSAL BETWEEN AATON & STUDIO AUDIO FOR THE FILM AND TV INDUSTRY.

FILMWAVE IS BASED ON THE .WAV AUDIO FILE FORMAT AND IS DESIGNED TO BE EASILY INTERCHANGED BETWEEN ALL POST PRODUCTION PROCESSES. EACH FILE IS STAMPED WITH LOCATION & TELECINE TIMECODE REFERENCES TOGETHER WITH OTHER RELEVANT PRODUCTION INFORMATION.

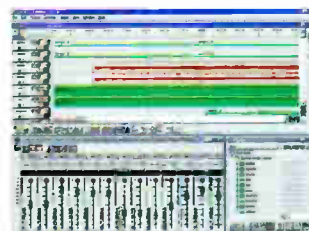
SADiE3's NEW PLAYLIST EDITOR ALLOWS AUDIO PROFILES TO BE DISPLAYED AND EDITED IN THE PLAYLIST. SCRUB AND JOG FUNCTIONS NOW ACT ACROSS THE ENTIRE PLAYLIST ENABLING ACCURATE POSITIONING WHEN WORKING TO PICTURE.

SADiE3 FEATURES A FULLY USER-DEFINABLE DIGITAL MIXER WITH COMPLETE AUTOMATION OF DYNAMICS, EQ AND LEVEL. A TRADITIONAL BUS STRUCTURE ALLOWS INTERNAL SUB-GROUPING, WHILE AUXILIARY SENDS ENABLE THE USE OF YOUR FAVORITE PIECES OF OUTBOARD EQUIPMENT.

THE PROJECT MANAGER IN SADiE3 ENABLES YOUR WORK TO BE ORGANISED INTO PROJECTS WHICH WILL HOLD ALL AUDIO AND EDIT DATA, (INCLUDING DESKTOP CONFIGURATION AND SETTINGS) ALL OF WHICH CAN BE BACKED UP OR RESTORED IN A SINGLE OPERATION.

AS MORE AND MORE MULTI-USER SITES EMERGE AND SINGLE SYSTEMS ARE USED BY MORE THAN ONE PERSON, AN INCREASING DEMAND HAS ARISEN FOR WAYS OF PROTECTING AUDIO FILES AND EDIT INFORMATION FROM ACCIDENTAL REMOVAL. SADiE3's USER MANAGER PROVIDES A SECURE MULTI-USER ENVIRONMENT BY ALLOWING AN UNLIMITED NUMBER OF USERS TO HAVE DESIGNATED PRIVILEGES BASED ON A PASSWORD MANAGEMENT SYSTEM.

Operating software



SADiE Disk Editor



SADiE disk editors

SADiE INC. OFFERS A VARIETY OF TURNKEY SYSTEMS TO MEET SPECIFIC APPLICATION REQUIREMENTS WITHIN THE AUDIO INDUSTRY.

ALL SYSTEMS COME COMPLETE WITH THE LATEST SADiE SOFTWARE AND READY TO EDIT STRAIGHT OUT OF THE BOX.

A HIGH SPECIFICATION COMPUTER, COLOR MONITOR AND AUDIO STORAGE DRIVES ARE INCLUDED IN THE PRICE. IN ADDITION, FREE SOFTWARE UPGRADES ARE INCLUDED FOR THE LIFE OF THE PRODUCT.

SADiE IS USED IN THE FOLLOWING APPLICATIONS:

- RADIO PRODUCTION
- FILM & TV POST PRODUCTION
- TELECINE SOUND TRANSFER
- SPEECH EDITING
- EDUCATION

SADiE turnkey

THE SADiE TURNKEY WAS DESIGNED TO OFFER THE USER A COMPLETE EDITING SYSTEM WITH ALL COMPONENTS PROVIDED BY SADiE INC. MOST USERS APPRECIATE THE BENEFIT THAT BOTH THE PC AND SADiE COMPONENTS ARE BACKED BY SADiE INC.

THE SYSTEM INCLUDES:

- A FAST PC
- COLOR MONITOR
- 2.1 GBYTE REMOVABLE AUDIO STORAGE
- THE LATEST VERSION OF SADiE SOFTWARE
- SADiE BREAKOUT BOX

SADiE master

THE SADiE MASTER WAS TAILORED TO TAKE ADVANTAGE OF THE SUPERB CD MASTERING FACILITIES OF THE SADiE SOFTWARE. THE INTEGRAL PQ EDITOR AND DDP MANAGEMENT SYSTEM HAVE ALREADY MADE SADiE ONE OF THE MOST POPULAR SYSTEMS FOR CD MASTERING AND THESE FACILITIES ARE GREATLY ENHANCED IN SADiE3.

FFEATURES INCLUDE:

- TWIN 2.1 GBYTE REMOVABLE AUDIO STORAGE
- THE SADiE MASTER PQ EDITOR
- EXTERNAL SCSI INTERFACE
- CDR RECORDER
- TOWER CASE

Disk editing systems



Hardware

The hardware control panels provide the user with a fully featured tactile user interface which enhances the use of the system and speeds projects to completion. They have been designed to supplement the control of SADiE3.

The master control panel incorporates transport controls, scrub wheel, editing, locating and function keys, a motorised master fader and time displays.

The fader panel provides 8 moving faders, function keys for channel assignment, mute, solo and 6 optical rotary encoders for eq, compression etc.



Octavia Modular Workstation



Octavia is a powerful modular digital audio workstation.

Each Octavia unit has eight digital and analogue inputs and outputs.

Audio storage, processing power and I/O channels may be expanded as required.

A single Octavia includes four AT&T DSP3210 processors which generate over 133Mflops of processing power.

Up to 10 Octavia units may be chained together providing 80 channels of digital and analogue I/O producing a staggering 1.3GFlops of processing power.

The software controlling the Octavia hardware is SADiE3.

This is a new generation of the renowned SADiE software combining new powerful methods of DSP processing with a clever and more flexible user interface. Each Octavia module is able to play 24 simultaneous streams of audio with full dynamic real time processing.

The hardware incorporates 20-bit delta-sigma A-D and D-A converters as standard as well as full AES EBU interfaces on all inputs and outputs. All processing in Octavia is performed digitally, to full 32-bit floating point accuracy providing transparent sound quality.

Each unit has a SCSI disk interface which supports the SCSI2 "fast and wide" specification and can operate in 16, 20 or 24-bit resolution.

An integral feature of Octavia is SnuffleCache - an intelligent cache which reduces the processor overhead allowing Octavia to move seamlessly between 16, 20 and 24-bit operation.

Multiple Octavia units are connected together by the Tentacle bus which is a native 32-bit floating point digital interchange highway. This bus provides up to 280 channels of audio transfer between modules.

The Octavia hardware allows SADiE3 to perform numerous powerful DSP functions including automated mixing and sub-mixing of level, eq, and dynamics.

Controllers

All communication is via a RS422 link and the fader panels can be chained together to provide extra channels if needed. Both panels are designed to fit neatly alongside a standard computer keyboard.

These hardware control panels are included with the Octavia modular workstation and optional with the SADiE disk editors.



Disk editing systems



octavia
MODULAR DIGITAL EDITING

SADiE Portable



THE SADiE PORTABLE IS THE WORLD'S FIRST TRULY PORTABLE DIGITAL AUDIO EDITOR. DEMANDS FOR FASTER NEWS GATHERING AND 20-BIT LOCATION RECORDING HAVE LED STUDIO AUDIO TO DESIGN A PORTABLE SYSTEM THAT IS THE EQUAL OF THE RENOWNED SADiE DISK EDITOR.



A UNIQUE SYSTEM, THE SADiE PORTABLE HAS PROVED INVALUABLE ON MANY OCCASIONS WHERE A DESK BASED SYSTEM IS SIMPLY IMPRACTICAL. THE CAPABILITIES OF THE PORTABLE ARE IDENTICAL TO CONVENTIONAL TURNKEY SYSTEMS.

Features include:

- **SADiE CUSTOMISED PORTABLE PENTIUM PC**
- **THIN FILM TECHNOLOGY (TFT) ACTIVE MATRIX SVGA COLOR SCREEN**
- **2.1 GBYTE REMOVABLE SADiE AUDIO DRIVE**
- **BUILT IN AUDIO MONITORING SYSTEM**
- **SWITCHABLE POWER SUPPLY - 110/240 V**

The SADiE Mobile field recorder is a co-development between Studio Audio and Rolec Ltd and has been designed as a response to the growing demands of the Electronic News Gathering (ENG) market.

As the use of the SADiE disk editor has grown in the broadcast sector, it has become desirable to have instant access to the field recording without having to upload DAT or 1/4" tapes.

The SADiE Mobile field recorder addresses this need by recording to the same removable audio drive used in the SADiE disk editor.

Back at the home facility the drive can be simply removed from the Mobile recorder and inserted into the SADiE disk editor and editing can start immediately.

Features include:

- 16 bit linear recording
- 32, 44.1 & 48kHz sample rates
- Random access through traditional controls
- Compact & robust metal casing with floating drive coupling
- 3 hours 20 mins recording time (stereo 44.1kHz, 2.1 Gb drive)
- Removable hard disk
- Cut & splice editing of individually named tracks
- Balanced XLR I/O connectors
- 4 power options - rechargeable battery, dry cells, 12V or mains

SADiE mobile disk recorder

Location recording



Portia



Portia is a new system which adds random access video facilities to the SADiE and Octavia workstations.

The principal use of Portia will be to replace costly VTRs in audio post production.

It has been designed for use in the syncing of rushes or dailies, auto-conforming, tracklaying and dubbing where instant random access is desirable.

Production staff are aware of the tape and head wear problems and the ballistic delays associated with conventional VTRs.

Portia provides true random access to any video frame or field, with the low maintenance costs associated with hard disk drive storage.

When a SADiE or Octavia system has Portia installed, recording and playback of video becomes an integral part of the SADiE3 software. The video then appears as an additional stream in the playlist.

Applications

- TELECINE
- OFF-LINE EDITING
- ON-LINE EDITING
- AUTO-CONFORM
- TRACKLAYING & DUBBING

In use

PORTIA DIGITISES THE INPUT VIDEO SIGNAL AND COMPRESSES THE RESULTING DATA STREAM USING JPEG VIDEO COMPRESSION. THE DATA IS THEN OUTPUT VIA A SCSI 2 FAST & WIDE INTERFACE TO A HARD DISK DRIVE OR SIMILAR STORAGE MEDIUM.

DURING PLAYBACK, THE DATA IS READ FROM THE DISK, DECOMPRESSED IN REAL TIME AND CONVERTED BACK TO A VIDEO SIGNAL, PROVIDING INSTANT RANDOM ACCESS TO FULL-MOTION VIDEO.

Digital video recording

Sascia ATM Networking



ATM networking

THE DEMANDS ON DIGITAL AUDIO WORKSTATIONS ARE EVER INCREASING. THE ABILITY TO TRANSFER AUDIO BETWEEN WORKSTATIONS SO THAT MULTIPLE USERS CAN ALL ACCESS THE SAME AUDIO AND WORK ON THE SAME PROJECT IS NOW ESSENTIAL.

SASCIA IS A REAL TIME NETWORK CAPABLE OF TRANSFERRING MULTIPLE CHANNELS OF DIGITAL AUDIO BETWEEN SADIE AND OCTAVIA WORKSTATIONS.

SASCIA USES ATM (ASYNCHRONOUS TRANSFER MODE) PROTOCOL FOR THE NETWORK INFRA-STRUCTURE. ATM IS THE FASTEST GROWING NETWORK TECHNOLOGY.

THE SASCIA 155MBITS/SEC LINK PROVIDES SUFFICIENT BANDWIDTH FOR CONTINUOUS REPLAY OF OVER 100 SIMULTANEOUS AUDIO FILES.

SASCIA Peer-to-Peer networks

A PEER-TO-PEER SASCIA NETWORK ALLOWS UP TO 8 REMOTE SADIE OR OCTAVIA DRIVES TO BE DIRECTLY CONNECTED AT ANY ONE TIME.

THE NETWORK PROTOCOL IS NOT LIMITED TO ANY SPECIFIC NUMBER OF USERS PROVIDED THAT THE VOLUME OF DATA FLOWING IN ANY PART OF THE NETWORK DOES NOT EXCEED THE CAPACITY OF THE LOCAL SWITCH. THE CAPACITY CAN BE EASILY AND COST EFFECTIVELY UPGRADED IN THE FUTURE.

A PEER-TO-PEER SASCIA NETWORK CAN BE USED TO PERMIT READ ONLY ACCESS TO REMOTE DRIVES ALLOWING A USER TO INCORPORATE MATERIAL FROM ANY OTHER NETWORKED SYSTEM INTO THEIR OWN PROGRAMME OR PRODUCTION.

USERS CAN LIST, SELECT, PREVIEW, EDIT NON-DESTRUCTIVELY AND ALSO PLAY OUT AUDIO FROM ANY MACHINE CONNECTED TO THE NETWORK AS THOUGH IT WERE THEIR OWN LOCAL DISK.

SASCIA Client-Server networks

THE SASCIA CLIENT-SERVER NETWORK WILL ALLOW THE USE OF FAST SERVER MACHINES USING STANDARD TECHNOLOGIES. THESE WILL BECOME EVEN MORE COST EFFECTIVE AS FAST ATM NETWORKS BECOME INCREASINGLY WIDESPREAD BOTH WITHIN THE AUDIO INDUSTRY AND IN OTHER AREAS.

A TYPICAL SERVER SHOULD BE ABLE TO SERVICE UP TO 80 CLIENT MACHINES DEPENDING ON THE USERS ROLE AND THEIR EXPECTED NETWORK AUDIO USAGE.

ATM IS AN HIERARCHICAL SYSTEM ALLOWING FOR VARIOUS COMPONENT PARTS OF A COMPLETE NETWORK TO BE OPERATING AT HIGHER SPEEDS.



The following are key reasons for SASCiA being based on ATM

THIS OPENS UP POSSIBILITIES FOR SUPER FAST DATA TRANSFERS BETWEEN MAJOR HUBS (SUCH AS SERVERS) WITHOUT RUNNING THE SADIÉ AND OCTAVIA DESKTOPS ANY FASTER THAN NECESSARY.

THIS METHOD OF COMBINING DIFFERENT DATA STREAMS AT DIFFERING DATA RATES IS NATIVE TO THE ATM ARCHITECTURE AND MAKES FOR A VERY FLEXIBLE AND EXPANDABLE SYSTEM.

IT IS OUR INTENTION TO ALLOW THE USER TO EXPAND THEIR NETWORKING ABILITIES AS THEIR REQUIREMENTS GROW.

Future Expansion Possibilities

AS ATM BECOMES THE FABRIC OF THE WORLD-WIDE NETWORK, IT IS EXPECTED TO BE ABLE TO CONNECT THE SASCiA NETWORK TO LARGER PUBLIC NETWORKS USING ATM SWITCH UNITS.

IT WILL BECOME EASY TO EXPAND THE NETWORK USING "OFF THE SHELF" PARTS USED IN THE WIDER BUSINESS COMMUNITY AND IN THIS WAY THE SASCiA NETWORK WILL BE CAPABLE OF EXPANSION AS THE DEMANDS OF THE CUSTOMER CHANGE.

- *Speed* - Existing ATM technology is fast enough for real time transfer of multiple channels of digital audio.
- *Scalable* - The basic model of an ATM network allows it to be scaled to accommodate any size of installation.
- *Expandable* - As ATM is scalable, it allows users to start with a small network and increase its size as their requirements alter.
- *Upgrade path* - SASCiA provides a bridge between a standard SCSI disk interface and an ATM network. It can therefore be appended to existing systems with minimum modifications.
- *Cost effective* - ATM technology is already being installed by major business users and public service telecommunication networks. It will therefore be manufactured by more silicon vendors and consequently it is expected to become the fastest and most cost effective network solution.
- *OEM* - An ATM to SCSI connection has the added advantage that most other audio and video editing systems already use SCSI devices for their data storage. It is therefore possible for other manufacturers' equipment to be integrated into a SASCiA network.

SADiE removable audio drives

- Allow rapid exchange of audio files and projects between systems

SADiE external drive towers

- Available in 2 drive or 4 drive configurations, the towers connect to SADiE's external SCSI interface and accept standard SADiE removable drives

Exabyte drive

- SADiE can use Exabyte drives for producing DDP CD masters, and also for high-speed backup and archive of up to 24-bit audio files

Hardware control panels

- Main panel provides time displays, jog wheel, edit controls, function keys and assignable motorised fader
- Fader panels provide 8 motorised faders and rotary encoders for Eq., dynamics etc. and may be linked to additional panels for larger systems

CDR drive

- Available in internal or external form, SADiE writes to the CDR at double speed to create Red or Orange Book Compact Discs

Twin screen display adaptor

- 2 x 2MB VRAM SVGA graphics accelerator which allows the use of two monitors for greater ease of use

Large computer display monitors

- Larger monitors are available in place of the standard color display

De-Noise noise reduction software

- Co-developed with Cedar Audio, De-Noise provides up to 20dB real time broadband noise reduction with no additional hardware requirements

VocAlign ADR software

- A software plug-in from Synchro Arts, applications include same-language double-tracking, foreign language post syncing and instrument double-tracking

Custom PC configurations

- Any SADiE system can be supplied with a custom PC specification which will be made to order

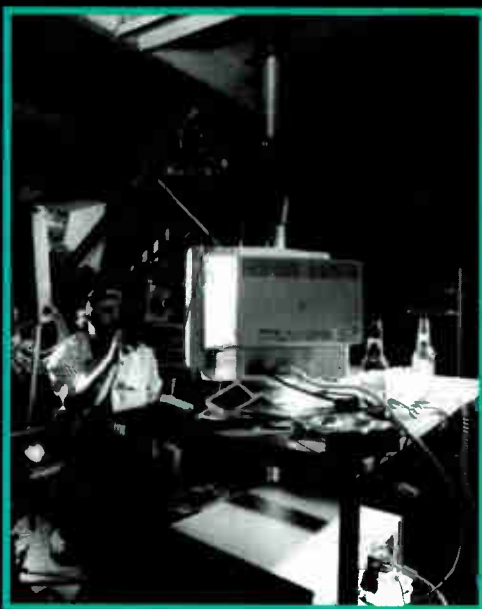
19" rackmount PC case

- If a desktop or tower PC case is not appropriate, SADiE may be supplied in a rugged 19" case for rackmounting

SADiE and Octavia are registered trademarks of Studio Audio & Video Ltd. Pentium and Intel are registered trademarks of Intel. Windows and Windows 95 are registered trademarks of Microsoft Inc. All other marks and names are acknowledged.

© & OE

Due to continual product development Studio Audio & Video Ltd reserve the right to change specifications without prior notice.



Photography: Nik Milner • London • UK • +44 171 633 0963
Design and production: M J Webb Associates • Newmarket • UK • +44 1638 741995

STUDIO AUDIO DIGITAL EQUIPMENT INC.
1808 WEST END AVENUE
SUITE 1119
NASHVILLE TN 37203
USA

PHONE +1 615 327 1140
FAX +1 615 327 1699
[HTTP://WWW.SADIEUS.COM](http://www.sadieus.com)

STUDIO AUDIO & VIDEO LTD
THE OLD SCHOOL, STRETHAM
ELY
CAMBRIDGESHIRE
UK

PHONE +44 (0)1353 648 888
FAX +44 (0)1353 648 867
[HTTP://WWW.SADIE.COM](http://www.sadie.com)

STUDIO AUDIO DISTRIBUTION IN EUROPE GMBH
VILLA LEINEN
KOLLWITZ STRASSE 16
73728. ESSLINGEN
GERMANY

PHONE +49 (0) 711 3969380
FAX +49 (0) 711 3969385

\$289*!

Are You Outta Your...

NEW! CM-700 Studio Mic

*Suggested manufacturer's USA retail price.

Not When You Read What the Pros Have to Say

Okay, so maybe you've seen this ad before. And maybe you thought that for the money, this mic just can't be that great. No more maybes. Here's what the critics say.

"In the studio, I compared the CM-700 against three of the best-known studio mics. The results were quite surprising. In three out of four comparisons, the CM-700 outperformed the old standbys."

"... more low end warmth ... none of harshness found with other mics ... did not sound overwhelming or unnatural."

- Will Rogers, Producer/Engineer, Looking Glass Studio

"... Compares favorably with accepted studio mics of its type. Good ability to handle high SPL applications. Excellent for miking instruments such as high strings, flutes, saxophones, trumpets, hi-hats, toms and snares."

"It's too clean. Don't change it."

"It's small size and dark color make it a natural for video apps."

**- Bill Tullis, Music Engineer/Producer
Turner Broadcasting**

"... it's frequency response is extremely smooth, even and extended ... the lower end is particularly impressive, lending a depth and fullness surprising for the job."

"... the aspect that sets the CM-700 apart ... its sound."

"The revelation came with vocals ... placed in front of a singer, its performance was so startling that I had to go back to the console to check that I was listening to the right channel, as the richness and depth I was hearing could easily have come from one of the large-diaphragm workhorses that I was using as a comparison."

"For once a condenser looks as though it is up to any of the rigors the road can throw at it while still giving remarkable results in the studio."

- Dave Foister, Reviewer, Studio Sound

SEE US AT AES BOOTH #600



CROWN®

Guaranteed Excellence

Visit us on the InterNet: <http://www.crownintl.com>

because they had to get their work done. There is a flip side to this. Some poor guy would be calmly painting away when all of a sudden machine gun fire would erupt out of the speaker in front of his face. The scenery artists were from New York, so they had no problem expressing themselves when some-

thing bothered them."

Working the night shift allowed the sound team to return to the home office during the day to cover phone calls and prepare material for the next night's session. The Micelis, along with technical production coordinator Travis Meck, were the core crew every night, and each of them has a wife and kids...at least they did the last time they checked. A typical work day during the final phase ran 18 hours.

While the building was being readied, Soundelux rented the large recording room at nearby Stark Lake Studios to mock up the mix position that would be built over the center seating section in the theater. Here, Meck was able to troubleshoot the wiring harnesses and ensure that the equipment communicated effectively.

The various schedules of post-production and construction folded neatly together until the final mix. Now the task was to reduce the 2,200 tracks down to 200 pre-dub stems to the final, then to the 24 tracks needed for playback. It almost goes without saying that managing such an immense job would be a very complex and tedious process. No existing film-mixing console would adapt to a 24-channel output bus except the Euphonix. And even that console would not have nearly enough inputs to simultaneously mix all of the music, dialog and effects tracks.

Because no single console could run the entire project simultaneously, the mix was broken down in a modular fashion. Without the ability to hear the missing elements in context when mixing, a highly automated mixing console would be an essential requirement. This provides the ability to backtrack a few steps and redo a mix in the event that another stem was found to interfere. The Euphonix desk is well-known for its comprehensive automation. Complete and instantaneous resettable-ty of all functions and controls made it possible to switch back and forth between music, dialog or effects sessions without any down time and without undesired alterations on the previous attempts. All that was necessary was to load the appropriate tapes into the designated machines and recall the current mix. Euphonix is accustomed to being out on the bleeding edge and has a comprehensive user support system. In order to ensure that the panning system functioned as needed and also to provide immediate assistance, Euphonix sent debugger/power user Phil Black-

**See and hear the newest
PCM 80/90 FX Cards
at your nearest participating
Lexicon dealer now!**

PARTICIPATING DEALERS

• **Ace Music Center**, N. Miami, FL • **Audio Intervisual Design**, W. Hollywood, CA • **Audio Operations Ltd.**, Mississauga Ontario, Canada
• **Boynston Studio**, Morris, NY • **Brownell Sound**, Portland, OR • **Caruso Music**, New London, CT • **Cintioli Music**, Philadelphia, PA
• **Coast Recording**, Hollywood, CA • **Communication Task Group**, Las Vegas, NV • **Comprehensive Technical Group**, Smyrna, GA
• **Dale Pro Audio**, New York, NY • **David Carroll Electronics**, Richmond, CA • **E.A.R.**, Phoenix, AZ
• **Enterprise West**, Burbank, CA • **Full Compass**, Middleton, WI • **Gand Music & Sound**, Northfield, IL • **Grandma's Music**, Albuquerque, NM • **Guitar Center**, Hollywood, CA • **San Marcos**, CA • **San Diego**, CA • **Fountain Valley**, CA • **Covina**, CA • **Sherman Oaks**, CA • **San Bernardino**, CA • **Lawndale**, CA • **Brea**, CA • **San Francisco**, CA • **San Jose**, CA • **El Cerrito**, CA • **Pleasant Hill**, CA • **Burbank**, IL • **Roseville**, MI
• **Arlington Heights**, IL • **Southfield**, MI • **Chicago**, IL • **Villa Park**, IL • **Roseville**, MN • **Dallas**, TX • **Arlington**, TX • **Houston**, TX • **Danvers**, MA • **Boston**, MA • **Hallandale**, FL • **Miami**, FL • **Harris Audio Systems**, N. Miami, FL
• **House Of Guitars**, Rochester, NY • **Leo's Professional Audio**, Oakland, CA • **Long & McQuade Music**, Toronto, Canada • **Magie Audio**, Orlando, FL • **Manny's Music**, New York, NY • **Pacific Pro Audio**, Seattle, WA • **Parsons Audio**, Wellesley, MA • **Pro Sound & Music**, San Diego, CA • **Pyramid Audio**, S. Holland, IL • **Rainbow Guitars**, Tucson, AZ • **Reliable Music**, Charlotte, NC • **RSPÉ**, N. Hollywood, CA • **Russo Music**, Trenton, NJ • **S. E. Systems**, Greensboro, NC • **Sam Ash Music**, New York, NY • **Huntington Station**, NY • **Brooklyn**, NY • **Paramus**, NJ • **Forest Hills**, NY • **Edison**, NJ • **Carle Place**, NY • **White Plains**, NY • **Cherry Hill**, NJ • **New Haven**, CT • **Miami Lakes**, FL • **Margate**, FL • **Sam's Music**, Brentwood, TN • **Short Sound Systems**, Mars, PA • **Steve's Music Store**, Montreal & Toronto, Canada • **Studio Tech Supply**, Dallas, TX • **Sweetwater Sound**, Ft. Wayne, IN • **Tennessee Stage & Studio**, Nashville, TN • **The Cutting Edge Audio Group**, San Francisco, CA • **Thoroughbred Music**, Tampa, FL • **Uncle Bob's**, W. Allis, WI • **Victor's House of Music/AMS**, Paramus, NJ • **Washington Music**, Wheaton, MD • **Washington Professional Systems**, Wheaton, MD • **Westlake Audio**, Los Angeles, CA • **Wind Over The Earth**, Boulder, CO • **Woodwind & Brasswind**, South Bend, IN

T2 3-D CREW AT SOUNDELUX

POST-PRODUCTION SOUND

Anthony J. Miceli: Project Supervisor
Supervising Sound Editor
John J. Miceli: Re-recording Mixer
Sound System Designer
Phillip Blackford: Re-recording Mixer
Wylie Stateman: Foley Supervisor
Dan O'Connell: Foley Walker
Gregg Baxter: ADR Supervisor
Peter J. Lehman: Sound Designer
Brian McPherson: Sound Designer
Rick Morris: Sound Designer
Jeff Largent: Sound Designer
Neal Anderson: Dialog/Foley Editor
Pat Sellers: Dialog Foley Editor
Laura R. Harris: Dialog Editor
Fred Stanley: Foley Editor
Glenn Longacre: Music Supervisor
Composer (pre-show)
Robert Kerr: Assistant Music Editor
Elizabeth Tobin Kurtz: Project Coordinator
Leslee Grizzelli: Assistant Coordinator
Travis Meck: Technical Coordinator
Scott Dismukis: Assistant Technician

SOUND SYSTEM DESIGN

Jeff Bobbin: Director of Project Management
Keith Kolbo: Project Manager
Rich Wagner: Programmer
Dan Newman: Director of Engineering
Vince Caglianone: Design Engineer
Robert Duffy: Assistant Design Engineer
Gary Brown: Assistant Design Engineer
Craig Vetrone: Fabrication Manager
Jeff Barnhart: Installation Supervisor
Topper Snowden: Design Consultant
Dave Marsh: Design Consultant

—CONTINUED ON PAGE 346

When we designed the PCM 80's basic complement of effects Presets, we also provided the ability to plug in hot, new Audio Software/FX cards. Simply plug in any of our cards and you've now supercharged the effects processor everybody is talking about. New effects and algorithms. Hundreds of stunning new Presets. Sophisticated PC-Card architecture that supports our commitment to functionality and continuing upgradability.

PCM 80 FX cards offer a library of over 700 new Presets — each one tailored for a particular application - with a unique Adjust Knob that lets you quickly audition variations of the effect. We put the most useful parameters of each preset into the PCM 80's "Soft Row" so you can fine tune the Preset without having to hunt for the appropriate parameters. Engineer or



musician, there's a Lexicon FX card for practically any imaginable sound. Right now, you can instantly load-up on your creative options with any of these new FX Cards:

- Dual FX — 25 Algorithms / 250 Presets deliver highest quality stereo multi-effects, unprecedented routing capabilities & a powerful new digital sub-mixer.
- Pitch FX — 6 Algorithms / 100 Presets combine Multi-Voice Pitch Shifting

with PCM 80 Stereo Algorithms.

- Harmony FX (Coming 1997) — Intelligent Pitch Shift Algorithms / 100 Presets offer Diatonic Harmonization, Automatic Pitch Correction and more.
- Scott Martin Gershin Post FX — 100 superb post-production Presets featuring Surround Delays for Film & Reverbs for Orchestras.
- David Rosenthal Music FX — 100 powerful performance Presets featuring brilliant reverbs & effects for keyboards, guitars, vocals.

And don't forget, you can use any Preset as a template to create your own stunning versions of Lexicon effects - and store up to 2,000 of those Presets using standard PCMCIA SRAM cards.

So check out the PCM 80 FX cards and experience the future today, at your Lexicon dealer!

Plug Into The Future



Available Effects

PCM 80 (200 Standard)

Algorithm Cards - Presets

DUAL FX - V1.0 250

PITCH FX - V1.0 100

Artist Preset Cards

Scott Martin Gershin 100
(Post FX)

David Rosenthal 100
(Music FX)



Heard In All The Right Places

Tel: 617/736-0300 Fax: 617/891-0340 E-Mail: 71333.434@compuserve.com

A Harman International Company
USE READER SERVICE CARD FOR MORE INFO

SEE US AT AES BOOTH # 811



An

ARRIVING A WEEK BEFORE OPENING CEREMONIES

AMID SWELTERING HEAT AND HUMIDITY THAT IS THE HALLMARK OF GEORGIA'S DOG DAYS OF SUMMER, WE WERE MET AT THE AIRPORT BY CARL CORDES, OUR SUPERVISING A/V TECHNOLOGY MANAGER, WHO ESCORTED US TO OUR ROOMS AT THE STOCKBRIDGE MOTEL SIX, WHICH WE

Audio

PROMPTLY DUBBED "LE

CHATEAU SEIS." THOUGH

THE AVERAGE HIGH TEMPERATURE FOR THE GAMES WAS OPTIMISTICALLY FORECAST AT 87 DEGREES, BOTH TEMPERATURE AND HUMIDITY APPROACHED TRIPLE DIGITS ON MOST DAYS, AND WE FELT FORTUNATE TO HAVE BEEN SELECTED FOR AN INDOOR COMPETITION. BACK IN APRIL, I PUT MY NAME INTO THE HAT TO BE CONSIDERED AS A SOUND OPERATOR FOR ONE OF THE COMPETITIONS AND



walk THROUGH THE

WAS PLEASANTLY SURPRISED TO LEARN I HAD BEEN CHOSEN, ALONG WITH DAVE REVEL AND DAVID SCHEIRMAN, TO BE PART OF THE TEAM RUNNING AUDIO FOR BASKETBALL.

Atlanta Olympic Games

BY MARK FRINK



PHOTO: MARVIN E. NEWMAN/IMAGE BANK

Above: Olympic Stadium; below: The AT&T stage at Centennial Park



PHOTO: KAREN WILL ROGERS

Martin Collins, A/V technical director for the Atlanta Committee for the Olympic Games (ACOG), had eight A/V tech managers, each responsible for several of the 30-odd competition venues, and under them were some 80 audio operators. Collins began working for ACOG as a designer and consultant in 1992 after working for EuroDisney as a project engineer, building the automated parade system and seven live venues for the entertainment division. By April 1995, he had moved into a downtown Atlanta apartment, enjoying occasional visits from his family or going home to Orlando on weekends. Speaking to Collins as he put the last cardboard box into a U-Haul to finally go home, he said the most challenging aspect of the Games was the extreme diversity of people and resources that had been available.

Rembrandt

- The latest ultra-high performance benchmark master production console from AMEK
- 80 and 112 input chassis options with 4-band AMEK Equalization on all inputs
- Discrete AMEK Mic amps and 16 Auxiliary send buses
- Every input automated with AMEK SUPERTRUE VCA automation as standard or AMEK SUPERMOVE Moving Faders as a main fader option
- AMEK RECALL allows positions of all non-automated channel controls to be memorized
- AMEK VIRTUAL DYNAMICS provides a range of digitally-controlled analogue compressors, gates and other gain control devices
- AMEK Visual FX allows remote operation via MIDI of outboard devices by Lexicon, TC, Yamaha and other premier brands from the console
- Automated Solo-In-Place and off-line editing of Mix Data and automated switch positions
- Onboard or External jackfields
- MIDI Machine Control from within SUPERTRUE
- Optional Stereo input module to be released later this year

AMEK

Head Office, Factory & Sales:
AMEK Systems & Controls Ltd
Tel: 0161 834 6747/
0161 950 8767
Fax: 0161 834 0593
E-Mail: amek@console-city.com

In the USA:
AMEK US Operations, Inc.
Tel: 818 508 9788
Fax: 818 508 8619

In Germany:
Mega Audio GmbH
Tel: 06721 2636
Fax: 06721 13537

In Singapore:
AMEK Systems & Controls Asia
Tel: 65 251 1629
Fax: 65 251 1297

"There was a wide variety of people components, from thousands of volunteers for whom it was the experience of a lifetime, to highly paid professionals who looked at it as just another job," he said. "The human drama on the field is hard to compare to the normal world of theatrical entertainment production."

Our first day at work involved standing in line for laminated credentials for two hours, another two for uniforms and finally going to audio orientation class, led by Dale Whealton, for a couple more hours. Whealton, whom I met at Super Bowl XXIX in Miami, where he was audio lead, was audio operator at the Georgia Tech Aquatic Center. He'd been in Atlanta since May and ran the test event at Aquatic Center last summer for six weeks. Whealton led us

**It became clear that
a military-like
organization had been
imposed by the
Olympic planners
as the only way
to deal with the
challenges presented on
such a large scale.**

through introductions to the sound gear we would all be issued, and started to familiarize us with the alphabet soup of job descriptions and the hierarchy of staff and department structure we would be working under. It became clear that a military-like organization had been imposed by the Olympic planners as the only way to deal with the challenges presented on such a large scale.

Standard issue for all competition venues was a core of control and playback equipment, typically a mixing board and a forest-green Baltic birch rack. Consoles were Ramsa WR-S44 series 4-bus mixers, varying from 12 to 24 channels. Playback was typically a Panasonic SV-3800 DAT, a Technics CD player and a Philips CD-I player; inserts, added at the last minute for the announce mics, were Aphex ST-106 4-channel Easyrider™ compressors.

The basketball competition was split

between two venues. By hanging a curtain at the 50-yard line, the 72,000-seat Georgia Dome was made into two half-houses shared between gymnastics and basketball. As there is a significant amount of audio spill from one half to the other, and only one sound system, it was possible to use the room for either competition, but not both. Installed in '92 by Dan Schipper of Ancha, the main speaker system is a ring of 22 clusters over the seating sections of the

Dome. Each cluster has three double-15 JBL lows, three Community M-4 mids and three DH-1A drivers on EV horns. The P.A. is powered by Crown amplifiers and, using an AMX controller talking to the IQ system, it is a simple matter to go from one preset to the next. The scoreboard over center court had an EV MT-2 system facing the mix position just behind the scoring table between the two team benches, and this covered the temporary bleachers

SEARCHING FOR STEREO AT THE OLYMPICS

by Dennis Baxter

In December 1993, I joined the Atlanta Olympic Broadcasters (AOB) design team to produce a generic Telecast and Archival Recording of all Olympic sports venue competitions, commencing with the Opening Ceremonies on July 19, 1996, and spanning the entire 17 days of continuous live action.

Each sport was examined, and a desired stereo perspective was defined. The first step was conducting comprehensive examinations of each sport's venue—from swimming to archery, equestrian, soccer, basketball, gymnastics—41 events in all. This detailed examination revealed desirable elements for a broadcast mix but also made clear the ambiguity in expectations for a 2-channel sound program.

The goal was to define a set of parameters for each sound mixer to develop a pleasing stereo soundscape, while maintaining stylistic consistency between the 41 different events. The big question became: Is the 1996 Olympic Summer Games an opportunity to stretch the boundaries of live audio sweetening with effects and music?

Our answer was that stereo would consist of a combination of aggressive microphone placement and electronic processing to achieve an omnidirectional sound orientation without a lot of specific left and right image placement. The stereo soundscape would be achieved through multiple layers of audience ambience, specific foreground sports sound and a dimensional layer of processed sound.

Once production guidelines were established for the number of



One of the many machine rooms at the International Broadcast Center

microphones and their locations, considerable effort was put into getting the equipment. AOB needed to build nine control rooms and rent 35 mobile television trucks. The microphone plan was ambitious, but not overstated, and once the size, class and owner of the television mobile units became known, it was apparent that we were significantly short of microphones. The mobile units' selection criteria are based on the number of cameras and tape machines and not the microphone complement.

I began approaching manufacturers about working with AOB in developing and providing new hardware for the Games. Initially, most responded enthusiastically when they contemplated the potential size of an order for the Olympics. After reminding them that the Olympics is a nonprofit organization and AOB was not interested in

—CONTINUED ON PAGE 72

THE Art **DIFFUSOR™**

"The Ultimate
Mix of
Technology
with Art"

Performance
Tested

.....

Quality
Materials

.....

Superior
Value

..

Sound Architecture

INTERNATIONAL SALES

The Sound Network
London, U.K. 44-181-372-3170
FAX 44-122-574-2155

sdg

For Free Application Assistance
Call 1-800-221-8975

For Sales Please Call
1-800-321-8975

USE READER SERVICE CARD FOR MORE INFO

added into what is normally the end zone, as the overhead ring clusters don't cover the area. EV MT-4 speakers in the other side of the scoreboard faced the announcers' positions in the press bleacher, which ran the length of the court opposite us.

A dozen blocks west and six blocks south, a \$12-million, 5,700-seat gymna-

sium was constructed at Morehouse College, just one of a dozen brand-new facilities built for the Games and part of a half-billion dollars of new construction left for Atlantans to enjoy as part of the city's Legacy program. The Morehouse Gym was used for half of the early rounds of basketball competition while gymnastics was going on at the

—FROM PAGE 71, SEARCHING FOR STEREO
buying anything, the candidates quickly narrowed.

Ken Reichal of Audio Technica asked if I would be interested in listening to their new shotgun microphones that incorporated the 40 Series diaphragm technology. The possibilities of unlimited new microphone technology excited me. The only problem was that AT had experienced poor reception to their products with some sports television people, so I had to persuade the decision-makers to give their product a chance.

Ken and Michael Edwards came to Atlanta with a box of microphones—and the Olympic Spirit—and we proceeded to put microphones of all shapes and sizes on things, in things and around things. To my satisfaction, it all sounded good. Now the problem was numbers: borrowing or renting 1,200 microphones.

The next big obstacle was to find a sound processor that could make a mono sound source feel full and dimensional. I thought that I would be able to excite some big keyboard or processor company about the tremendous prospects of television and stereo sound, but found few that were interested.

Stereo synthesizers have been around for decades and have even been used and abused at Olympics in Korea and Spain. In sports television, most microphones are small and very close to the possible sound or mounted on a camera. From a practical standpoint, most of these sound sources are mono. I was looking for a device that added a 2-channel dimensional fullness to a single-channel sound source, without a significant amount of comb filtering or phasing.

My experience with creating a stereo soundtrack was trial-and-

error, but it led me to develop the layering effect. Additionally, a stereo mix group was created where the mixer would insert a stereo delay line and add a few milliseconds to a specific group of microphones and then add the processed mix into the outgoing stereo mix track.

The problem with most stereo processors is that they have been used traditionally at the end of the mix chain and have affected the entire mix. The layering technique eliminates this approach and gives additional depth to the soundtrack by creating three distinct layers.

At an AES meeting in 1994, I attended a seminar on 3-D sound and finally believed that we were headed in the right direction for television. The problem with most 3-D or surround sound is the necessity for some output decoding—not an option for the Olympic broadcast. Then I discovered the Desper Spatializer Processor, which had a very basic setup. A simple setup was desirable because of concern for consistency with each telecast, and this unit afforded flexibility in sculpting a mix because of the eight inputs and joystick controllers.

While the Olympics is the platform for audio excellence and stretching the boundaries, it is also the event not to screw up. Our goals were to establish a new professional standard and working precedence for live stereo sports broadcast and to inspire the next generation of audio engineers while delivering world-class audio for a world-class event. The immediate reaction was overwhelmingly favorable. Only time will tell our long-term success. ■

Dennis Baxter was in charge of setting up the International Broadcast Center, responsible for feeding 144 broadcasters around the world.

Dome. Nearly half of its permanent seating was taken up by the seats reserved for athletes and their entourages, IOC officials and VIPs, or by the booths used for press accommodations and broadcast commentary positions. The Morehouse Gym's mix position was halfway up the press area, opposite the scorers' table, allowing the sound operator the luxury of watching on TV monitors in adjacent, unoccupied commentary booths many of the 40-plus channels of CCTV broadcast live from the other competition venues.

Speakers and amplification varied widely by venue. The permanent system at the Morehouse Gym was designed by Wayne Lee, who also specified acoustical treatment for the room and really saved intelligibility, cutting the RT60 in half. Fifteen EAW JF-560 two-way speakers were powered with Ramsa WP-1400 amps. Lee also designed systems for the Clark Atlanta University and Morris Brown College stadiums, used for field hockey, as well as the Stone Mountain Tennis Center. Next to the Dome was the Georgia World Congress Center, where Masque Sound of Orlando provided 20 Meyer MSL-2s for fencing; 16 MSL-4s were used for wrestling and team handball. South of the airport at "Georgia Beach," where the beach volleyball competitions were held, the main court had a dozen Crown-powered EAW KF-850s rented from Rock'n'Road Audio, while the secondary court had a Crest-powered KF-650 system owned by ACOG. The crewing races out at Lake Lanier, a beautiful manmade recreation facility about 60 miles north of Atlanta, used a rented combination of vintage paging horns and sound reinforcement relays—honest efforts were made to involve local vendors where appropriate.

The 32-hour library of ACOG-approved production music was compiled by the different sports' producers and assembled by DMX For Business onto eight CD-I discs, arranged by category, such as orchestral, country, oldies, international, contemporary pop and so on. The Philips CD-I technology was new back in 1992 and used just for the medal ceremonies in Barcelona. For the Atlanta Games, the U.S. Army Band, official keeper of national anthem protocol in this country, provided most of the cuts on DAT, with a few smaller or newer nations supplying theirs directly. These were sent to DMX, who hired Interactive Resources of Des Moines, Iowa, to author the software for the final national anthem CD-I. This disk

allowed the operator to select ahead of time one of five different-length arrangements of John Williams' processional, the correct national anthem, and then an appropriate-length recessional. After selection, the fanfare and the three selected pieces simply played one cue after the next, and this music was used for each welcoming ceremony at the Olympic Village, as well as the medal ceremonies. Also provided was a five-disc set of Official Olympic Music CDs, which was often used as untended walk-in and walk-out music, as was the 24-hour DMX Olympics music channel piped in over the CCTV cable system by Scientific Atlanta.

Many competition venues had 360 Systems Instant Replay Music-On-Demand (MOD) machines, upgraded with larger hard drives to accommodate 16 total hours of music. Instant Replay refers to the 50 buttons on the face of the machine that can be assigned to the internal tracks and are similar to 360 Systems' DigiCart, which is a rack-mount instead of table-top unit. Due to the fast pace of basketball, almost all production music was played from the Instant Replay, as the process of thumbing through eight CD-I's, scrolling through an index and then waiting five seconds for the cued track to start, would take most of a 20-second time-

BROADCAST VIDEO PRO-AUDIO MULTIMEDIA AUDIO VISUAL INTERFACE CUSTOM CABLING You.



POWER TEAM MARKERTEK.

America's Largest Systems & Equipment Catalog.

312 PAGE CATALOG FREE!



REQUEST IT TODAY!

Featuring Custom Cables • Custom Patch Bays • Custom Patch Panels • Video & Audio Cables • Connectors • Bulk Cable • Patch Cords • Fiber Optics • Switchcraft • Neutrik • In-Line Audio Adapters • Patch Bays • Audio Interface Boxes • Midi Interface • Duct, Reels, Ties, I.D. Supplies, Crimp Tools, Strippers • Tool Kits • Power Cards • Power Centers • Power Inverters • Equipment Racks & Accessories • Telephone Interface • Computer To Video • Character Generators • Teleprompting • Delay Lines • Hum Eliminators • Time Code • Timers • Test Equipment • Signal Generators • Encoders & Decoders • TBC • Stick-Ons • Rack-Lips • Distribution Amps • Audio/Video Switchers • AV Mixers • Audio Distribution • Audio Mixers • Power Amps • P.A. Speakers & Monitors • Crossovers • Analyzers • EQs • Multi Effects • Psycho Acoustical • Noise Gates • Mic Preamps • Compressors/Limiters • Direct Boxes • Multi-Track Recorders • DAT Recorders • Cassette Decks • Studio Reference Monitors • Microphones & Accessories • Wireless • Mic Stands • Mic Accessories • Headsets & Headphones • Intercoms • Listening Centers & Systems • P.A. Systems • Lecterns • Audio Cassette Duplication • Cassette Recorders • Sound Systems • TVs • VCRs • Camcorders • Video Printers • Video Tape Duplication • Standards Conversion • TV Mounts • Portable Lights & Batteries • Camcorder Batteries & Chargers • Rack Cases • Equipment Cases • Shooting Supplies • Lighting Equipment • Overhead Projectors • LCD Panels • LCD Projectors • Projection Screens • Wall Rail Systems • Slide Projection • Visual Presentation • Film Projectors • Film-To-Video • Presentation Boards • Esels • Copy Stands • Laminators • Binding Equipment • Labels • Warning Lights & Signs • Music & Video Libraries • Audio & Video Tape • Stock, Storage, Albums, Reels, Cleaners, Demagnetizers, Edit Blocks & Rewinders • High Tech Storage • TV & AV Carts • Furniture • Hand Trucks • Acoustic Foam & Barriers **PLUS LOTS MORE!!!**

MARKERTEK
GENELEC
SONY
SENNHEISER
audio-technica
SHURE
TANNOY
Electro-Voice
4TecNec
LEANAHE
Studiomaster

PLUS 400 OTHER TOP LINES AT LOW PRO-NET PRICING!

WE'RE HOME OF THE UNIQUE & HARD-TO-FIND

SALE! PLUS FREE ADHESIVE!

MARKERFOAM™ ACOUSTIC FOAM GIANT 54"x54"



Immediate Shipping

2" Reg. \$29.95. Now \$19.99
3" Reg. \$39.95. Now \$29.99

KILL NOISE QUICK! High performance, full size sheets of super high density Markerfoam. EZ mount. Blue or gray. Super-effective sound absorption for studios. Markerfoam offers best value, looks professional and is proven in studios worldwide. Request Foam-Buyers Guide/Catalog, specs and free samples today. VISA, MC, AMEX, COD, P.Os. QUANTITY DISCOUNTS.

MARKERSTIK™ foam adhesive. FREE with any foam purchase in this ad. Limited Offer. A \$5.95 per tube value.

MARKERTEK BLADE TILES

HIGH PERFORMANCE LOW, LOW COST!

\$3.49 per tile, 16x16x2". America's best acoustic tile value, only from Markertek. Charcoal. Also available 16x16x3" as shown, \$4.49 each.



SONEX

ALL THE COLORS & SIZES PLUS GREAT PRICES!

MARKERTEK JUMBO SOUND ABSORB BLANKETS

Heavy duty, 72" x 80" padded blankets absorb sound whenever they're hung or draped. Fabulous for stage, studio and field use. Top professional quality at a super saver price. Weight 6 lbs. Black \$19.99



MARKERTEK®

VIDEO SUPPLY

800-522-2025 • 914-246-3036 • Fax 914-246-1757
4 High Street, Saugerties, NY (USA) 12477
Browse Markertek on the World Wide Web: <http://www.markertek.com/>

USE READER SERVICE CARD FOR MORE INFO

World Radio History

NOVEMBER 1996, MIX 73

"Amazing"

— Bob James

"Phenomenal"

— Jon Anderson

"Remarkable"

— Don Murray

"Blew me away"

— Nathan East

"Most accurate"

— Sheffield Labs

"Terrific"

— DMP Records

"A masterpiece"

— GRP Records



Award-winning professionals from around the world are calling our Platinum Session 1's

the best studio monitors they've ever heard. Designed with the input of top industry professionals, they're specifically voiced for accurate near-field mixing. Call toll-free and order a pair today at our introductory price of \$1995pr. And if you're not shouting their praises within 30 days, just ship them back at our expense. **Guaranteed.**



**PLATINUM AUDIO'S NEW
SESSION 1 STUDIO MONITORS
\$1995pr.**



1-888-PRO-SPKR

or (603)-647-7586

(Credit cards and C.O.D. only please)



Patrick Baltzell at the Closing Ceremonies rehearsal

out. CD-I in the form we encountered is not quite ready for prime time, and the Instant Replay offered hundreds of cuts that were only five keystrokes away, with virtually instant start times.

The 1996 Olympics marked a milestone in the marriage of music and athletics, "setting a new standard in spectator enhancement for international sporting events," Collins said. In the case of basketball, a core of about 100 "hot songs" were used for time-outs and half-time, familiar "jock rock" and classic hits such as "Takin' Care of Business," "Hot Hot Hot," "Conga" and, of course, "YMCA" and "Macarena." Tip-off music at the beginning of play was often "Sirius" by Alan Parsons, popularized from its use by the Chicago Bulls, and many fans stopped by the mix position afterward to ask specifically about that piece of music.

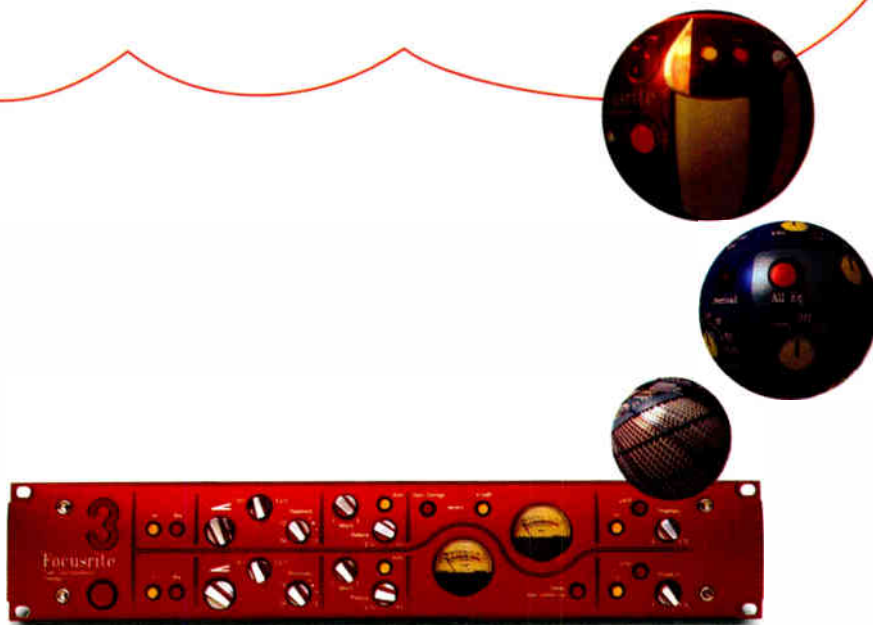
Equipment for all the competition venues was assembled and shipped from the Warehouse Audio Visual department (WAV), managed by J.T. Tomlinson, who began work on the audio requirements and logistics back in January with a spreadsheet in an empty room. Equipment projections were made in Microsoft Excel, and MS Access was used for the actual tracking of shipping and receiving. "Using HTS and a bar-code system would have helped," Tomlinson comments, "but we in fact tracked over 90 percent of

inventory with serial numbers, and the recovery rate was extremely high considering our condensed recovery time of less than a week." His shop staff of five—Rebecca Dusenbery, Ron James, Matt Robison, Kris Weeks and intercom specialist Tim Wilson—were unsung audio heroes, spending many weeks working long hours in an old Sears warehouse on the funky near-West side of Atlanta, putting together systems for users they never met, to produce events they hardly saw. Though small quantities were purchased up to a year ahead of time for special events and conferences, the majority of sound equipment was purchased six weeks before the Games began. Systems were pulled from inventory, assembled onto pallets and shrink-wrapped for truck delivery by the Logistics department, which was responsible for shipment of everything supplied by ACOG, from telephones, computers and TV monitors to folding tables and chairs.

Thirty-seven control booth packages were required for the various competition venues, and by the time the Games began, 160 discrete sound systems had been shipped, beginning with the late-June delivery of pool, health spa and amphitheater entertainment systems for the athletes at the Olympic Village. Other systems included announcement playback that was needed at the en-

"The Focusrite Red Range
is a reviewer's dream
come true"

David Foister, Studio Sound Magazine



"The Focusrite Red Range is a reviewer's dream come true."

...So said David Foister of Studio Sound magazine in his review of the Red 3 Compressor and Limiter.

We are proud of the fact that every review of the Red Range has been peppered with compliments on the appearance, performance and build quality of this, our premium range of studio products.

The classic ISA 215 equally inspired Dominic Hawken writing in Audio Media magazine...

The "Focusrite ISA 215 has the most revealing microphone amplifier I have ever heard and a very powerful and smooth sounding equalisation section, capable of handling virtually anything thrown at it."

To learn more about these outstanding products, please request our new Studio Products brochure and reprints of magazine reviews. Call your local Focusrite dealer or contact Focusrite direct.

Focusrite
audio engineering

studio products

SEE US AT AES BOOTH # 1111

ISA 215 Dual Mono Mic-pre and Equaliser • Red 1 Quad Mic Pre • Red 8 Stereo Mic Pre • Red 2 Dual Equaliser • Red 3 Dual Compressor/Limiter
Red 4 Pre-amplifier • Red 5 Power Amplifier • Red 6 Mono Pre & Equaliser • Red 7 Mic Pre & Dynamics

USA: Focusrite@Group One Ltd. 80 Sea Lane, Farmingdale NY 11735 USA Tel: 516 249 1399 Fax: 516 753 1020 Email: maria68@ibm.net
Made in the United Kingdom by Focusrite Audio Engineering Ltd. 2 Bourne End Business Centre, Cores End Road, Bourne End, Bucks SL8 5AS England
Phone: 01628 819456 Fax: 01628 819443 Email: sales@focusrite.com Homepage: <http://www.focusrite.com/focusrite/>

USE READER SERVICE CARD FOR MORE INFO

MISSION: POSSIBLE

THE NEW PHONIC MAR SERIES - THE ULTIMATE DEFINITION OF A POWER AMPLIFIER

499.00
Special Offer for
NOV.1-DEC.31'96

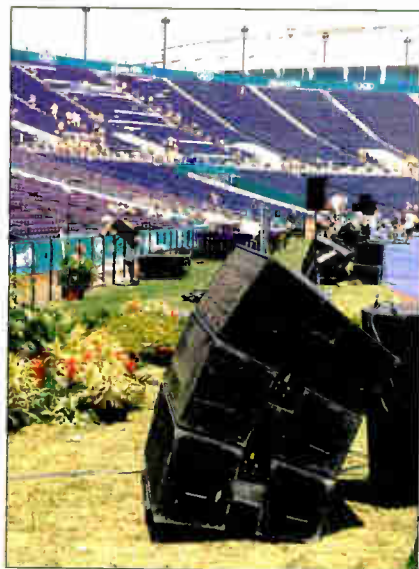


EVERYTHING'S POSSIBLE WITH THE NEW MAR SERIES POWER AMPLIFIERS FROM PHONIC. EXTREMELY RELIABLE DUE TO A YEAR OF ABUSIVE TESTING, THESE AMPLIFIERS FEATURE TRIPLE PROTECTION CIRCUITRY, POWER-UP MUTING, MODULAR INTERNAL CONSTRUCTION, TOROIDAL POWER TRANSFORMER, NEUTRIK INPUT CONNECTORS AND TWO DUAL-SPEED FANS FOR MAXIMUM COOLING.

1%THD 1KHz	40hm	80hm
Stereo	425w	270w
Bridged mono	1100w	850w

PHONIC

1632 McGraw Avenue, Irvine CA92614
Phone: 949.324.3050 Fax: 714.75210000



EAW KF-860s at Olympic Stadium

trances of all venues to alert the crowds coming in of the various requirements. Called "spiel" systems, these typically consisted of a digital message repeater, a TOA 900 Series amp and any number of 70-volt paging horns.

"We made an effort to buy rather than build equipment," Tomlinson says. "Any fabrication required had to be done at least 37 times." For example, the announcers used Sennheiser HMD-25 headsets with dynamic boom mics that come from the factory with bare wires, because they typically get used with a wide variety of connectors. In our case, these plugged into ClearCom AB-100 announcers' boxes that allowed the headsets to be both intercoms and announce with fold-back, requiring a six-pin XLR connector. Two headsets were needed at each competition for English and French announcers, and 70-plus A6M connectors had to be soldered on the day they arrived. Many of the parts and pieces were bought from Whirlwind, who Tomlinson says "took good care of us and exceeded our expectations." Whirlwind provided everything from Switchcraft connectors and rack-shelves to press boxes and custom multipair cabling. Eight-pair announcers' snakes provided three lines for announce mics and five sends for different channels of ClearCom and fold-back to the announce boxes. Eighteen-pair rack mults had the XLR and RCA sends, returns and ¼-inch inserts for the console.

For the sound operators, the week before the Opening Ceremonies consisted of setting up equipment at the venues and then running mock competitions to verify that the technology

human touch feel inspiration

The new Elite Audio Console from Otari... merging the precision of Digital Control with the most elegant of analog circuit design.

The Elite is an expression of Otari's belief that High Technology should enhance, not inhibit the creative process. With Audio specifications straining theoretical limits and sonic characteristics that can only be described as legendary, The Elite is a combination of disciplines. It looks and feels familiar while delivering the complete level of computerization essential in today's recording environments. We invite you to experience the total integration of technology and art—audition the Elite.



Otari Elite is available with up to 96 Automated Faders, Image Recall with Snapshot memory and Master Status Switching. Film and Post Production multi-format panning versions are available.



Otari, Inc.
Japan
Phone: (81) 4-2431-8626
Fax: (81) 4-2481-8633

Otari Corporation
USA
Phone: (415) 341-5900
Fax: (415) 341-7200

Otari Deutschland GmbH
Germany
Phone: 49-(0) 2159-50861
Fax: 49-(0) 2159-1778

Otari Singapore Pte., Ltd.
Singapore
Phone: (65) 284-7211
Fax: (65) 284-4727

Elite
OTARI[®]
The Console Company

<http://www.otari.com>

© 1996 OTARI Corporation. All rights reserved.
The OTARI logo is a registered trademark of OTARI Corporation.

World Radio History
USE READER SERVICE CARD FOR MORE INFO



The Ultrasound crew (L to R): Andy Slote, Don Pearson and Mike Brady

being used was working correctly. Several high-school teams were brought in, giving the competition managers a chance to shake out any bugs involved in communication, scoring, statistics and production. After the sound systems were correctly EQ'd and aligned, and

everyone had received "Beltpack 101," the rest of the sound operation was reduced to being a DJ. After NBC finished trying to move the speakers for camera angles, the hardest part of running sound for the actual Games became trying to teach our producers how to use

the words "standby" and "go," as these weren't in their vocabulary.

The majority of sound setup involved a variety of headset locations used for competition personnel involved in judging or scoring, results and timing, statistics and printer distribution, the producers and their assistants, as well as the two announcers and the sound mix position. Results were computed on a roomful of IBM computers that were fed into a local-area network that would transfer this information to a 90 ppm color Xerox printer for press distribution immediately following each competition, as well as out to a network information service called "Info 96" that the press dubbed "Info 97" since it might be working by next year. An additional headset was also placed out in the Atlanta Olympics Broadcasting graphics trailer, because for the first time computer-generated statistics were automatically transferred and automatically "Chyroned" onto the broadcast picture.

Both the AOB trailer and the Xerox printer were at a great distance, requiring the use of telephone "dry-pairs" for extremely long cable runs. Intercom Specialties, who provided the 2,000-plus

STATE OF THE ART 32-BIT PRO AUDIO!

SEE US AT AES BOOTH # 1524

DSP•FX
VISUAL PRO AUDIO

The Professional Software/Hardware Effects Processing System

"I was blown away when I first saw DSP•FX...
...you can finally see what you're hearing"

RUNS ON ANY WINDOWS PC!

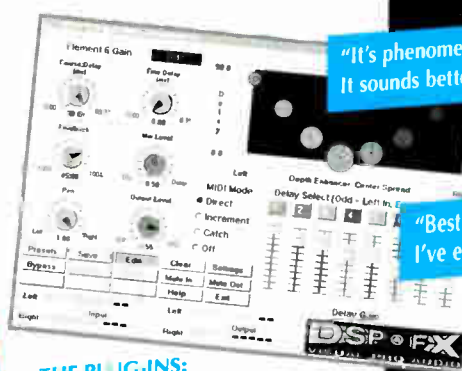
— Walter Afanasieff, Multi-Platinum Producer/Writer (Mariah Carey, Boyz II Men, Barbara Streisand)

"It's phenomenal. It's fantastic. It sounds better than my PCM70."

— Gary Garritan, Artist/Producer Heavenly Records

"Best f***ing processor I've ever seen"

— Ian McLagan, Artist (Small Faces, Faces, Rolling Stones, Bob Dylan, Bruce Springsteen)



THE PLUG-INS:

- DSP/FX Graphic Reverb
- DSP/FX Multi-Tap Delay
- DSP/FX Full Stereo Pitch Shifter
- DSP/FX Multi-Element Chorus
- DSP/FX Analog Tape Flanger
- & MORE! (contact us for latest PLUG-IN list)

To Try DSP•FX call
1-800-778-6761

DSP•FX	TC M2000 & M3000	Lexicon 800/90 & 300	Eventide DSP-4000
True 32 bit Floating Point Processing	YES	no	no
Complete Visual User Interface	YES	no	no
User-Upgradable Architecture	YES	partial	partial
Complete Online Upgradability	YES	no	no
Unrestricted Real-Time MIDI Control	YES	no	no
Available With Analog & Digital I/Os	YES	yes	yes
Prices Starting At	\$799	\$1995	\$2495 \$4497

POWER TECHNOLOGY

100 Northhill Drive, Bldg. #24 • Brisbane, CA 94005 • USA • Phone: 415.467.7886 • www.dspfx.com

USE READER SERVICE CARD FOR MORE INFO

World Radio History

BRYSTON PROFESSIONAL ST AMPLIFIERS

Introducing a New Standard
in Professional Amplifier
Design and Performance

In the demanding professional
environment, you need an ampli-
fier that is transparent, neutral
and uncoloured. You want to hear
the music, not the electronics.
Preserving the integrity of the
source signal is paramount to
Bryston's design philosophy.

Bryston amplifiers are versatile
performers, designed for use in a
variety of demanding professional
and commercial applications,
including high quality recording
studios, radio and television
broadcast facilities, theatre and
soundstage amplification, arena
and nightclub installations and
multi-amplified speaker systems
of all types.



Listen past the equipment and experience the performance as intended. Bryston professional ST amplifiers, from the top: 8B ST 4 channel 120 wpc, 5B ST 3 channel 120 wpc, 4B ST 250 wpc stereo, 7B ST 500 watts mono. Not shown is the 3B ST 120 wpc stereo.

Our ultra-linear input buffer-with-gain feeds the amplifier channels from both balanced and unbalanced inputs, resulting in sizable reductions in noise floor and distortion.

Power supplies are completely independent per channel and employ multiple smaller filter capacitors, rather than single large filter cans, improving high frequency response.

Wiring harnesses have been completely eliminated so that channels plug directly onto the power supply PCB, reducing resistance and improving current flow.

YEAR WARRANTY



Music
for a
Generation

Bryston Ltd. PO Box 2170, 677 Neal Drive, Peterborough, Ontario, Canada K9J 7Y4
Tel (705) 742 5325 Fax (705) 742 0882 **In the U.S.** 106 West Lime Ave., Suite 207, Monrovia,
CA 91016 Tel (818) 359 1454 Fax (818) 359 9672 World Wide Web Site www.bryston.ca

USE READER SERVICE CARD FOR MORE INFO

BRYSTON

SEE US AT AES ROOM # 306A

IMPROVE AUDIO/VIDEO QUALITY

ProGold™

ADVANCED CONTACT TREATMENT

- Improves Conductivity
- Reduces Noise & Distortion
- Improves Definition & Clarity
- Extends Dynamic Range
- Seals & Protects Surfaces

Even the finest equipment cannot guarantee noise-free/error-free operation. One "dirty" connection anywhere in the signal path can cause unwanted noise, distortion and signal loss. Considering the hundreds (if not thousands) of connections in electronic equipment today, it is only a matter of time before they begin to fail.



Environmentally-Safe/Non-Flammable Wipes, Pens & Precision Dispensers - Ideal for Service Techs!

How Does ProGold Actually Work?

ProGold outperforms all other contact cleaners, enhancers and lubricants. Due to its unique properties, it deoxidizes and cleans surface contamination, and penetrates plated surfaces and molecularly bonds to the base metals - **NO OTHER PRODUCT DOES THIS.** ProGold fills the gaps in the contact surfaces, increasing the effective surface area and current flow (conductivity).



Why Use ProGold?

ProGold increases the performance and reliability of all probes, connectors, switches & equipment. It improves conductivity for greater reliability, repeatability and reduces noise & interference and lowers distortion. Unlike other products, it also stabilizes connections between similar and dissimilar metals. ProGold is available in many convenient non-flammable and environmentally-safe applications that are ideal for use by service techs worldwide.



CAIG Products ... used by those who demand the best!

Ampex	General Electric	McIntosh Labs	Tektronix
Orebold, Inc.	Hewlett-Packard	Motorola	Texas Instruments
Dolby Lab	Honeywell	Rane Corp.	Wayne-Dresser
Fluke Mfg. Co.	IOI, Inc.	Switchcraft	Xerox Corp.



16744 West Bernardo Drive
San Diego, CA 92127-1904
TEL: 619 / 451-1799
FAX: 619 / 451-2799
E-mail: caig123@aol.com
URL: http://www.caig.com

1-800-CAIG-123

pieces of ClearCom rented for the Olympics, also provided 130 DPA-100 "dry pair adapters," which split the audio and power coming in on an XLR and balanced them onto separate pairs of telephone wire via RG-14 connectors, with another DPA turning it back around to XLR at the other end of the phone wire. This made it easy to place headsets at extreme distances, which became even more important at outdoor competition venues where runs of 1,000 feet or more were not uncommon. At the crew races, several runs actually went under Lake Lanier via 25-pair phone trunks, connecting the competition officials to the starters and to positions on the spectators' side of the lake.

Many computer-based technologies were being tried out for the first time, and the communication between various operators and competition personnel was designed to prevent foul-ups like the end of the 1980 USA vs. USSR basketball final, where three seconds had to be put back on the clock and the Russians went on to win. The Olympics Technology department initially proposed using intercom technology for higher-fidelity and cost savings over radios—more flexible and adaptable than phone lines, they said. "The reason we considered intercom was the full-time, dynamic conversations that are required in a party-line fashion," Collins explains, "and so people can comfortably communicate over the course of long shifts."

Through use of multiple ClearCom channels and a mix of single- and double-channel belt packs, different competition personnel were able to have access to conversations that affected them without having to listen to chatter from other departments. "Wireless intercom extends the flexibility and adds the benefits of radio without the drawbacks," Collins says, "especially on and around the field of play." After several days of sorting out bugs in the software interfaces between results, statistic and print distribution, ClearCom headsets became valued equipment for troubleshooting more advanced technologies. We even had a biscuit station back in the amp room behind the bleachers at the Morehouse Gym, making it easy to tweak in EQ and delay times for the P.A. on the Ramsa WZ-DE40 processors in the amp rack.

CENTENNIAL PARK

The now-famous Centennial Park, located downtown, across Techwood Drive from the CNN building, was the site of several corporate-sponsored

stages, where free entertainment was supplied for those who didn't have tickets for an ongoing competition. There was a fast-and-furious pin-swapping area where some extremely serious pin-heads were getting down. Can you believe these people have their own regularly published magazine? The GM Amphitheater presented regional bands throughout the day on a Meyer speaker system provided by Sound Associates, and a laser light show at night. The largest was the AT&T stage, with sound provided by UltraSound.

I stopped by a couple of nights before the tragic bombing to listen to the work of one of my favorite engineers, Buford Jones, who has been out doing an excellent job mixing Faith Hill all year. Talent ranged from international acts like Jon Secada and Santana, pop acts Joan Osborne and Little Feat, to country talent Tim McGraw and Travis Tritt. Other events on the AT&T stage included re-medaling ceremonies, where each day's winning athletes would be presented to the audience that evening, and a daily auction of a numbered, limited-edition Hanes T-shirt, with proceeds going to purchase Olympics tickets for needy children. The day I stopped by, the T-shirt went for \$32,500. The stage also had an enormous Panasonic video screen for image magnification and projection of ongoing competitions. When I returned the day after the bombing, the Meyer HD-Is had been replaced, as had the sound consultant who had been interviewed on CNN.

Front-of-house equipment included a Yamaha PM-1000 with 40 inputs from the stage and a dozen stereo returns, plus a ProMix 01 submixer for playback with two Panasonic 3800 DATs, a Denon multidisc CD player, a cassette deck and additional inputs from video world. Outboard gear was the usual high-profile Lexicon, TC Electronic and Eventide effects, plus Aphex, KT and BSS inserts. The main speakers were Meyer MSL-10A, 650-R2 subs and MSL-4s for front fills, all powered by Crest amps. The SPL restriction was 96 dB average with peaks of 100, metered C-scale slow at the mix position. Each of the two delay towers, one of which was the FOH mix position, were 150 feet from the stage and 15 feet offstage of the main P.A. stacks. In addition to follow-spots, lighting and video control on the upper decks, these towers housed the same number of MSL-10s and subs as the mains. Toward the rear of the listening area were a half-dozen of

Meyer's new CQ-2 self-powered speakers on poles that were so nicely tricked that they weren't even noticeable until you stood right below them. The entire system was aligned and EQ'd by Don Pearson using Meyer's SIM II. Onstage, the fabulous Mike Brady and Andy Srote ran another 4000 with a half-dozen-each Crest-powered USM and UM-1 wedges.

"The bomb put us on edge for the rest of the event," Brady commented from UltraSound's San Rafael offices, "and we went through several evacuations afterwards." They were back on-line at 100% within two days when the park reopened. "Meyer shipped in another pair of near-field monitors for the mix position, which were essential because of our unusual position," Brady points out. In addition to the monitors, some switch-caps got blown off the 4k, and a CD player and cassette deck were affected. There were no wiring problems, although Nocturne's video snake was damaged. "The one thing that really saved the gig is the camaraderie between L.S.D., Nocturne and Ultra," Brady adds, "based on our long history of working unusual high-profile events together." There were great shows every night, and the people came back in droves to take ownership of the park, which was probably the most popular place on the planet in the final week.

OPENING CEREMONIES

Sound services for the Opening and Closing Ceremonies were provided by Audiotek. Patrick Baltzell mixed on a 32-input Cadac F-Type console, one of only three in the world. It has automated P&G moving faders, as well as dual inputs, EQ in and out inserts and VCA assigns, all of which are recallable. It is essentially a cost-effective version of the Concert console, costing less than a third as much at about \$125K, with 12 submasters, 16 auxiliaries and 24 matrix outputs. "It's taken me a year to realize that it has the best common-mode rejection of any live console," Baltzell says. "I've never spent even 30 seconds tracking down hums or buzzes." He spoke to me from the control position at the Democratic National Convention in Chicago, having finished the Republicans the previous week, where he again used Audiotek.

The Opening Ceremonies included President Clinton addressing the audience and, as such, included the usual White House Communications arrangement of taking the president's microphone directly to a Shure mixer and

passing it straight out to broadcast and recording it archivally, as well as to two phone patches. One phone patch goes to the White House and the other to the president's entourage, where it is also recorded and transcribed.

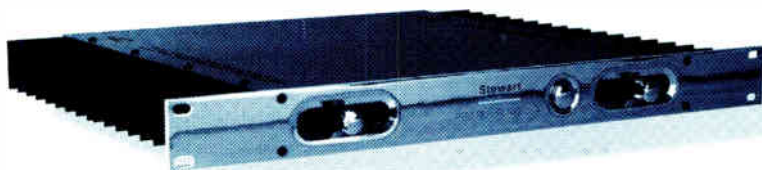
In addition to the more than 400 custom EAW speakers in the Ron Baker-designed permanent stadium system, the speaker placement for the Opening and Closing Ceremonies called for 20 positions around the circumference of the stadium track, each position divided vertically into lower level, club level and upper level coverage, or "near, mid and far," with the near speaker being a 90-degree EAW

KF-861, and the mid and far being KF-860s, which have 60-degree horizontal dispersion. The system was EQ'd by Alexander "Thorny" Yuill-Thornton, who, using the Meyer SIM II system in typical fashion, started by EQ'ing the near element in the array, then worked on the next coverage zone, combined it with the previous one, and finally added in the farthest throw speaker. Baltzell complimented EAW's Gary Hardesty, who had EAW build 15 more of the KF-860s at the last minute when Spectrum Sound's and half of ProMix's went out on the Promisekeepers.

There were also about five dozen Apogee AE-5 speakers that were not

Evolution. The Acclaimed PA-500* is now the PRO REFERENCE 500

*see TEC award nominees



The PRO REFERENCE™ 500 features:
Polished Chrome Faceplate
Gold Plated Input and Output Connectors in a
Convection Cooled single Rack Space.

Perfect for professional recording, broadcast and project studios:
The PRO REFERENCE™ 500 utilizes Stewart's own *Harmonic Shift Correction™* and *In Rush Current Limiting™*. The PRO REFERENCE™ 500 uses an ultra-efficient Switch Mode Power Supply enabling the PR-500 to reproduce crystal-clear highs with unsurpassed low frequency response.

And, it weighs only 10 pounds!

The Evolution is complete. Experience the PR-500
at your local Stewart dealer.

Also available, PRO REFERENCE™ 1000.
The PR-1000 – when more power is demanded.



Made in the USA with a 5 year warranty

When the Performance Depends On It™

Stewart

ELECTRONICS

120 Blue Ravine Rd., Suite 2, Folsom, CA 95630 • Tel. 916.985.7200 • Fax 916.985.7600

SEE US AT AES BOOTH # 1054

USE READER SERVICE CARD FOR MORE INFO

We build studios where true sound lives

Spaces that



ARCOUSTICS, INC.

ARCHITECTURE + ACOUSTICS

720 Greenwich Street, Suite 2C,
New York, New York 10014
212-727-9645 • Fax 212-206-7320

USE READER SERVICE CARD FOR MORE INFO

part of the permanent system, added just for the Games and rented from Burns Audio. The far end of Olympic Stadium is temporary and is already being torn down, reducing capacity from 83,000 to 50,000 for Braves baseball in '97, when the 31-year old Atlanta-Fulton County Stadium, just to the north, will be torn down. The EAW speakers are powered with Crest amps, as is the stadium's permanent system. Each rack on the field powers four cabinets at 4 ohms and is loaded with two 9000s, two 8000s and a 7000. Perhaps the most interesting part of this system is the fact that Audioteck's chief engineer, Scott Harmala, has designed a balanced-power AC distribution, providing ± 60 volts AC instead of 120 volts and a neutral. The permanent system is powered by 135 NexSys-controlled Crest amps, located in a room behind the sound booth on the club level. The permanent system was installed on an extremely tight schedule by Olympic Stadium sound operator Dan Schipper and Ancha's Henry Stephens starting in April.

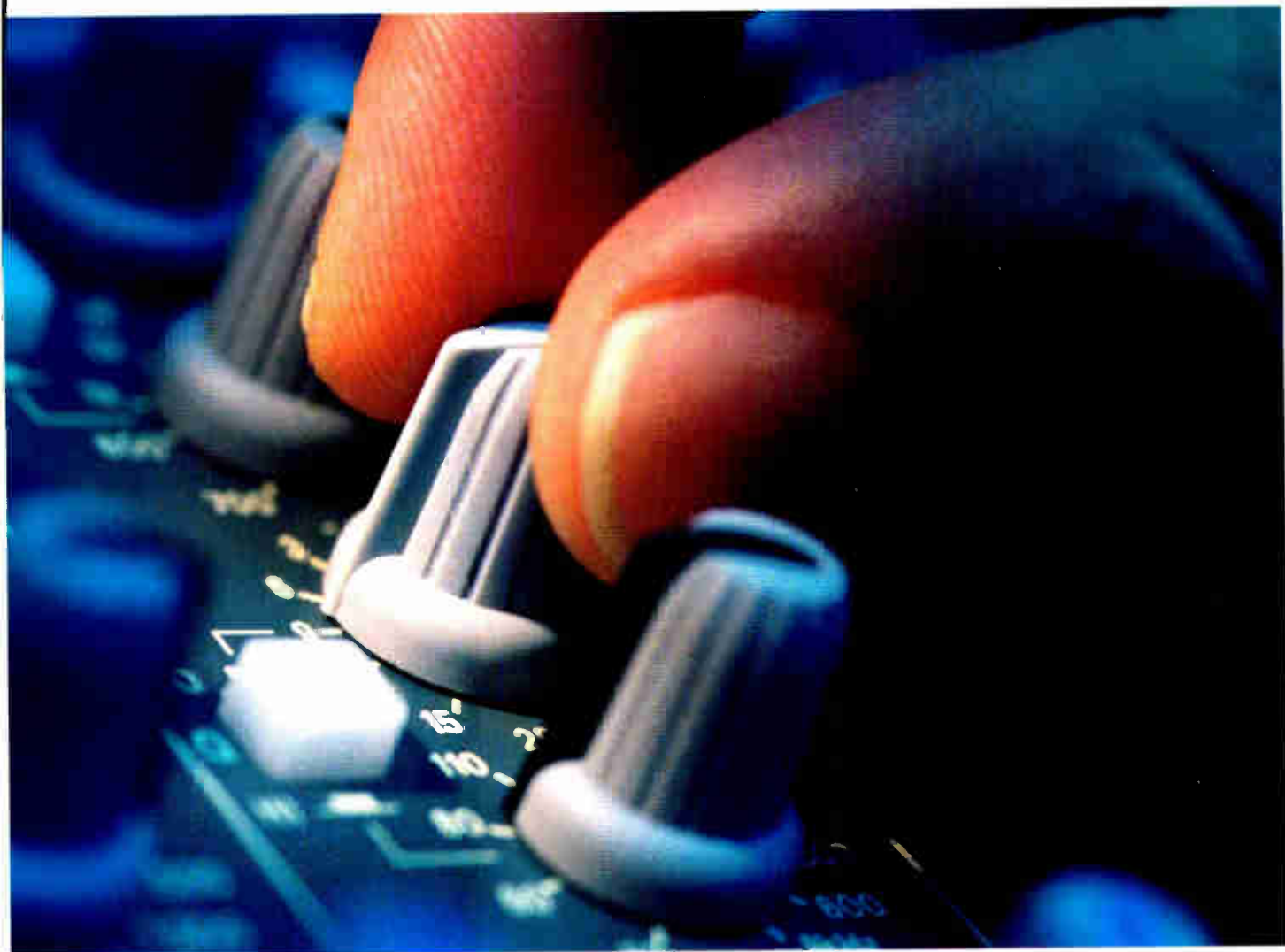
NBC presented the opening and closing ceremonies with their commentators in the audience instead of behind glass. With average SPL of 103 dB and peaks of 115, there was significant leakage into the announce mics, which, of course, was out of time, forcing the broadcast audio to rely on either the direct feed or the leakage getting into the mics between commentary, which was virtually nonstop. This was unfortunate, as the original music compositions were beautiful, particularly Mickey Hart's international collage during the opening, and Gloria Estefan's "Reach" and John Williams' "Summon the Heroes" during the closing. As I watched the abbreviated rehearsal come to a close, NBC personnel ran to the mix position to ask Baltzell to turn off two of the positions at the far end—the commentary position. Baltzell said he would be glad to do that if that's what producer David Goldberg wanted, but that those speakers were covering about 7,000 patrons who had each paid more than \$600 per seat. In the end, the speakers were turned a couple of degrees to no great effect.

The Opening Ceremonies had the luxury of more than a week of setup time in the stadium and two full rehearsals, with the second being a full dress, complete with pyro and Blue Angels; all Olympics volunteers were invited. "We had the benefit of equalizing the system with a full house ahead of time," Baltzell adds. "Furthermore, the

entire dress rehearsal was videotaped for fill shots and, in the event the ceremony got rained out, we already had the entire thing in the can." After the Opening Ceremonies, the entire system was struck, save the wires in the moat around the track. The only prior rehearsal for the Closing Ceremonies was to take the consoles and band set carts into a tent across the street to do a cue-to-cue the day before. Starting at midnight, they had ten hours of setup time to get the system back into the stadium, stopping from 7 a.m. to 11 a.m. for the finish of the marathon and beginning the dress rehearsal at 2 p.m., with doors looming at 5 p.m. This kind of work is not for wimps, and Baltzell stopped me to expressly thank his audio crew leaders, Graig Greco, Robert Brogden, Rick Bramlette and Eric von Rauson for the exemplary work they did in getting things together that day in exceptionally short order, fighting extreme heat and humidity.

How much of the show was on tape? Well much of the Opening Ceremonies was in fact played from an Akai DR-16 hard drive playback editor, split into four pairs of stereo tracks—music, choir, lead vocals and surround effects. More than 90% of the audience heard surround program due to the generous spacing by WJHW of speakers almost every 20 feet in the permanent system. "It was nice to be involved in the planning on the ground floor two years ago," Baltzell says. "We were able to choose the way the tracks were recorded to fit the audio design." Much of the Closing Ceremonies were either live vocals or entirely live. Four Radio Station transmitters and 16 receivers were by the talent on the field, and vocal mics were Vega (with 87 capsules) and Beta 87s when hardwired. The Southern Jamboree finale had four set carts join on the field to make a stage for Paul Shaffer's Band, with a half-dozen smaller satellite carts spiraling in to meet it with a variety of musical stars from the American South. In a matter of minutes, 57 live inputs were connected to Baltzell's two Delta 200 consoles, and a musical jam (which had not been rehearsed that afternoon) began. The real tip of the hat goes to monitor engineer David Velte, who was up with the Shaffer Band and entourage, spinning knobs on his 4000 monitor console. ■

Mark Frink is working on a device that will automatically mute the sound when "YMCA" or "Macarena" comes on.



The Soundcraft DC2020 -because not all EQs are equal.



Whether working in post-production or music recording, you are judged by the sound of your finished product - however diverse and whatever the quality of the source material.



With outstanding new EQ design, Soundcraft's DC2020 delivers an unrivalled degree of control - invaluable when assembling audio from more than

one source.

Add to that moving fader automation, touchscreen driven machine control,

video sync, plus on-board hard disk storage, and the argument for choosing DC2020 becomes irresistible.

Discover more about the DC2020 by calling 818 893 4351 today.



HARMAN INTERNATIONAL INDUSTRIES LTD., CRANBORNE HOUSE, CRANBORNE INDUSTRIAL ESTATE, CRANBORNE RD., POTTERS BAR, HERTS, EN6 3JN, ENGLAND. TEL: +44 (0)1707 665000 FAX: +44 (0)1707 660482

SOUNDCRAFT HARMAN PRO NORTH AMERICA, AIR PARK BUSINESS CENTER, 1449 DONELSON PIKE, SUITE 12, NASHVILLE, TN 37217, TEL: 615-399-2199 FAX: 615-367-9046

SoundcraftTM

H A Harman International Company

USE READER SERVICE CARD FOR MORE INFO
World Radio History

Vintage A READER'S GUIDE TO Gear (...er, Old)

In the early days of our industry, equipment was made to serve the user's needs. Many of the original studio owners came from a radio background. They built their own equipment, from consoles to compressors to equalizers, etc. They didn't have cost-effective manufacturing in mind when they created this equipment—they built it in order to make superior-sounding recordings.

At some point, other people in the audio community asked these pioneers to build equipment for their studios. The world of professional recording equipment manufacturing was born. While much of the original research and development was carried out by Bell Labs, many of the early studio owners took these designs to the next level for their own purposes.

BY FLETCHER



Neve 1073 rack



Pultec EQH-2 (top) and EQP-1A



Teletronix LA-2

All gear from the collection of A&M Studios, Los Angeles, photographed by Steve Barncard

While today some "boutique" manufacturers still make some excellent equipment, a far greater number of manufacturers make relatively inferior products. Discriminating professionals find these latter products unacceptable and are always eager to lay their hands on tools that will help them get the sound in their head onto the tape. For many, "vintage" equipment helps them to realize their goals.

The term "vintage" is seriously overused. It applies very well to wine and guitars, but it does not apply easily to pro audio hardware. Whereas a '62 Château Lafitte-Rothschild is a dream to behold, and a 1960 Strat (the first year they made the fretboards in rosewood) can very well change your life, I have never heard of anyone who would consider a '74 Neve 8014 desk superior to the '72 version (or vice versa). Although a Neve desk may be identified as

"vintage" by its owner, "old" is often the more descriptive (though arguably less flattering) term.

Of course, the fact that something is old and has tubes doesn't necessarily make it good. Transformers. Class A amplifiers, big knobs, faded paint, inability to pass a square wave, excessive second harmonic distortion or the need of a forklift for installation—none of these features necessarily makes a piece of equipment good. What does make it good is its usefulness in a given application.

Though I am a sales weasel by day, I am an engineer on nights, weekends and other days off. I have done major-label work, and have a few Gold/Platinum records on the wall. I have chosen to approach this survey from the point of view of my engineering practice. Nowhere will you find the words "Mercenary Audio" (oops). What follows is a list of

PELONIS SOUND & ACOUSTICS, Inc.



Future Disc Systems — Hollywood, CA

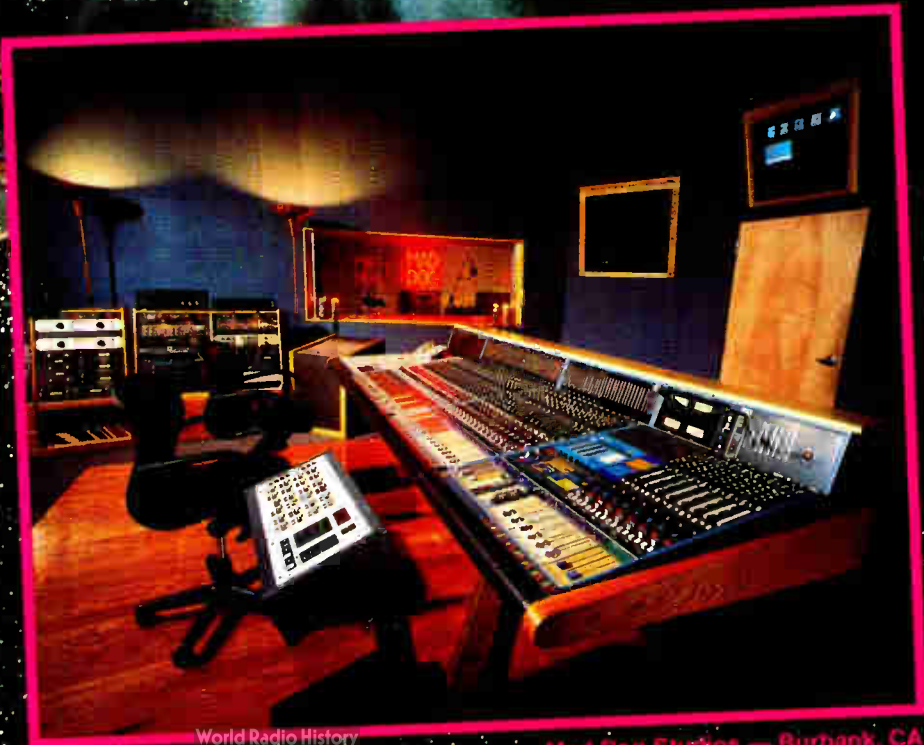


Interlock Studios — Hollywood, CA

**Acoustics
& Custom
Facility
Design**



P.O. Box 30491
Santa Barbara, CA 93130
805.563.0505
FAX 805.563.9604



World Radio History

Mag Dog Studios — Burbank, CA

a few of my favorite things, and why.

A caveat. The history of the earlier days of our industry is for the most part undocumented. When I was first contacted by *Mix* to put together a guide to "vintage" equipment, I went through piles of manufacturers' original spec sheets, old advertisements, etc.—I found them to be almost completely useless. Most historical knowledge is passed on verbally and may be distorted along the line. With that in mind, I recommend that you take the following with great big handfuls of salt. Magazine articles are no replacement for experience.

MIC PREAMPLIFIERS

There are two major schools of mic pre design—tube and solid-state. We have grown to love many of the solid-state sounds and designs. In many cases they are superior to their tube counterparts. The tube models generally have a more distinct character. Let's look at some tube goodies first:

Perhaps the most popular (at the moment) are the German brown book standard units. They were built by a variety of manufacturers for German broadcast and were used by other manufacturers (most notably EMI) for their consoles. The V-72, V-72A, V-76 and V-78 are the most notable. (The V-74 is a line amplifier, V-73 a comp/limiter.)

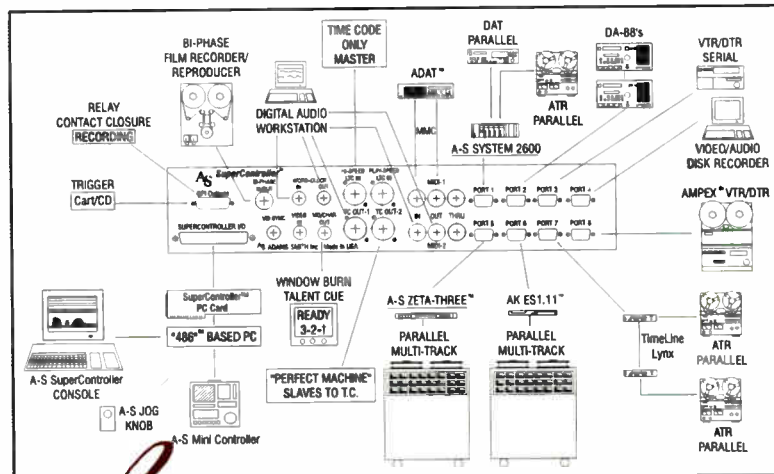
The V-72 is a dual-tube unit employing two Telefunken EF-804S tubes. It has 34 dB of gain and a maximum output level of +15. This is especially good for high-output microphones like the U-17, U-67's (pad removed), M49s, C-12s, etc. The V-72 offers a very musical shimmer at the top end, as well as a full tone and thickness. The V-72A used one E180F and one 5654 tube; it has 42 dB of gain and also a +15 output. This will work better with FET condensers (414s, U87s, etc.). V-72A amplifiers are found in the EMI REDDI 37 Abbey Road consoles that were used on the Beatles recordings up to *Sgt. Pepper*.

The V-76 employs four of the EF-804S tubes. It has a variable gain for 0 dB to 76 dB. The V-76/80 has an equalizer (useless!), and a highpass filter (nearly useless). The V-76/M doesn't have these features and to my ears sounds a bit better. It is double the width of the V-72 and, coincidentally, about double the cost.

The V-78 is perhaps my favorite of the group. It has a variable input gain from 50 dB to 72 dB, excessive in most applications but controllable with a Shure Brothers variable mic pad. Its

SUPERCONTROLLER™

THE ULTIMATE MACHINE CONTROL/EDITING SYSTEM



Imagine . . . all these features:

Your field material has been transferred to DA-88 format and is out of sync by an unknown variable. In fact, there is no sync reference available as the original time-code was faulty. Worse, you need to transfer the material in sync to a PAL video.

The solution to this or any sync problem is easily resolved, (*pun intended*), using the Vari-Lock™ capabilities of the super controller.™

Not only can the SuperController vari-speed traditional transports, but using its precision vari-speed word-clock output, the SuperController can control any digital device such as workstations, DAT's and 8-track formats in a controlled, synchronous mode. Even material recorded without a time-code or pilot tone reference can be easily transferred in sync at any frame rate, 24, 25, or 30.

- Control and synchronize up to eight serially controlled audio or video transports, two MIDI MMC devices, a bi-phase Mag machine, plus audio workstations, all without synchronizers
- Full insert and Assemble editing with 48-track select capabilities, plus Cue, Video, and Time-Code tracks, ideal for layback applications using punch-in or automatic editing
- Control the entire system from your console or custom controller
- Automate the conforming process using traditional Video Edit Lists

Now, imagine all this and more for the price of a traditional synchronizer system!

For additional information and detailed specifications, please call

(508)562-3801

AS
ADAMS-SMITH

34 Tower St. • Hudson, MA 01749

USE READER SERVICE CARD FOR MORE INFO

While we're on the subject of hen's teeth, MCI (Music Concepts Inc.) from Jeep Harned, the same dude who manufactured consoles and tape machines in the '70s and '80s, made a tube mastering limiter that can do some very cool things for guitars. It has the ability to keep the guitar sound as big as it can be, but through some special powers it seems to possess, it makes them get out of the way of the vocals. How *does* it know?

Tubes have become all the rage due to the inadequacy of digital storage devices. There are numerous solid-state units that will sound better in many applications than tube units. One of the unfortunate by-products of tube units is the fact that their attack times can be measured with a calendar. Many solid-state units, especially those employing opto-attenuators, will have a similar response. Some will not.

I believe it was during the late '60s that Teletronix was purchased by Universal Audio (all hail Bill Putnam!) and the LA-3A was born. The LA-3A is for many applications a solid-state LA-2A. It does have a different tone. While the LA-2A has an airy quality to its distortion artifacts, the LA-3A has a more solid midrange. It is a tougher-sounding unit, fat as you could ever want, and it has the ability to take a sound and move it right to the front of the speakers.

Universal Audio grew to become UREI, and the LA-3A was improved to become the LA-4. The LA-4 has much clearer audio than the LA-3A, and greater function control. Now instead of having input-dependent ratios, we could select between 2:1, 4:1, 8:1, 10:1 or 20:1. We were also trusted with input and output level controls, instead of the threshold and gain make-up controls given to us on the LA-2As and 3As. This gave us the ability to tailor our compression needs, rather than being at the mercy of the designer's idea of what we needed. Unfortunately, the designer seemed to know a helluva lot more than many of the unit's users, so this was not necessarily a good thing. This was the beginning for the potential misuse of compression.

Universal Audio also built a tube compressor known as the UA 175 (175b), which with added control became the UA 176. UREI came out with

a solid-state version of these and called it the 1176. The earliest models were silver-faced with a blue stripe around the meter. They featured push-button ratio selection 4:1, 8:1, 10:1, 20:1, as well as attack and release controls. These blue-stripe ones are still in favor with many well-respected engineers. Perhaps the best use I have heard lately of these units is by Ray Kennedy (Room and Board, Nashville), who recorded the Steve Earle & The Dukes' *I Feel Alright* album. I ran into Steve when he was playing in Boston, and he joked that they almost called the album *1176*.

The original blue stripes were replaced by the black-face 1176 LN. LN allegedly stands for low noise; I think it stands for less noise. This unit has quadrupled in price in the past two years. It's a great box with a unique, very present character to the sound. It's very easy to use, and it's a no-brainer to see why the unit has soared in popularity.

Like its predecessor, it has four ratio buttons. Mixer Michael Brauer (I'm sure he's going to put a contract out on me for sharing this information) told me about pushing in all four buttons simul-

was a black-faced version, but I have never seen one.

On the 1176 LN silver face, the bean counters made them take out the input transformer (my conjecture), and the unit never had the same rich tone. The four-button trick doesn't work as well, either. It's still better than most new limiters on the market today, but not as cool as the black face. UREI made a similar error in judgment with the LA-4, although I don't find the silver LA-4 to be as bad as the silver 1176 LN. When it comes to UREI compressor/limiters, black is beautiful!

About the same time all that was happening, a small Mass. firm called dbx was making a comp/limiter called the 160. Like the LA-3As and LA-4s, it was two rack units (RU) high, and half of the standard 19-inch rack width wide, allowing for two units to be strapped together and rack-mounted. This is one of my favorite limiters for percussive instruments. We've all had to suffer through the drummer who gets excited at the beginning of each new section of the song—you know, the genius who hits the kick drum 2 dB harder at the head of each chorus. This is my favorite box for controlling that excitement.

The dbx 160 has a tremendous amount of "grab," and when used sparingly, it can erase the dynamic range from almost anything. You have to be careful not to overuse it, but if used well, it will fix a lot of problems. The 161 is an unbalanced version of the 160, and it works equally well. It

can be balanced with a transformer; doing that will net you a slightly fatter tone than the differential balancing circuit in the 160. Use a good transformer! For best results, consult a tech who really knows analog circuits.

The 162 is a stereo version of the 160, operating on one set of controls. I have found its best use is across a stereo drum bus. It's not a favorite for the 2-channel mix bus, but your results may vary.

Units that are considered vintage, or are at least rarer in the world of solid-state, are Neve compressor/limiters. The original units were approximately 5.25 inches square and were delivered in the consoles, typically the meter bridge. They were not intended to be



dbx 160 and UREI/Teletronix LA-3A

taneously. Wow! It's the most aggressive sound I have ever heard from any piece, any time, anywhere. It's so cool, you easily want to overuse use the effect, though I strongly caution against it. If you are brave enough to try the four-button trick, do not look at the meter without a healthy dose of Dramamine. It ain't a pretty sight. There were about four incarnations of the black face, but I'm not clear on the differences. I have found that the lower serial number models seem thicker in tone, while later serial numbers are a bit brighter and faster-sounding.

The 1178 is a stereo/dual mono version of the 1176 with single controls. It is a very useful item and has its own distinct character. I'm told that there



INTRODUCING THE AMAZING DTH[®] S AND DTH[®] SF FLYING ENCLOSURES.

The DTH[®] S/SF series marks the beginning of a new era of sound reinforcement for Peavey Electronics. These high-performance enclosures have propelled us into the pro-touring market with stratospheric expectations. Equipped with 44T™ high-frequency compression drivers, durable high-precision Black Widow[®] woofers with field-replaceable baskets, the DTH S/SF

series minimizes down time and keeps your tour running on schedule, night after night. And for added convenience, we've

included an external full-range/biamp locking switch, which provides maximum flexibility in any venue, and Aeroquip™ ring-and-stud flying hardware, which guarantees safe rigging applications.

So if you're looking for maximum sonic performance with minimum effort, check out our new act: **The DTH S and SF Pro Touring Enclosures.**



SEE US AT AES BOOTH # 629

PEAVEY

The MONITOR Magazine is a publication filled with the latest information musicians want to know. To receive 4 issues for only \$5 (price good in U.S. only) send check or money order to: Monitor Magazine, Peavey Electronics, 711 A Street, Meridian, MS 39301 • (601) 484-5365 • Fax (601) 486-1278
http://www.peavey.com • AOL Keyword: Peavey • CompuServe: Go Peavey • ©1995

USE READER SERVICE CARD FOR MORE INFO

rack-mounted, or moved for that matter. The most commonly found are the 2254/A, and 2254/E.

The 2254/A and 2254/E are almost identical, the difference being in the limiter function. The 2254/A has a fixed attack time, and the 2254/E has a selection between slow and fast attack. If you are at all handy and can read a schematic, it is not difficult to alter the attack time of the 2254/A to the slow attack time of the 2254/E (or so Burt Price in our technical department tells me). I find the slower attack time more musical. A variety of compression ratios are available on both units. The 3:1 ratio is my favorite, but

experimentation may lead you to a different conclusion.

The 2254s were found in the older (dark gray) 80 Series Neve consoles. When they changed the color of the desks to a lighter gray and began to employ black plastic knobs with various shades of blue in the knob insert caps, they added an extra "3" at the beginning of the model number. So a 32254/E is the same as a 2254/E except for the paint job.

The next model in the progression was the 2264/A, most commonly found as the 32264/A. Whereas the 2254s are nearly square, the 32264/A is 1.75 inches wide by about 8 inches tall. The

functional differences between them have as much to do with tonal differences as anything else.

The fastest release time on the 2254 is 400 ms on the compressor and 100 ms on the limiter. On the 32264/A, the fastest release times are 100 ms on the compressor and 50 ms on the limiter. This gives you a whole new world of possibilities. Also, the stereo link facilities are right on the module instead of being an outboard afterthought as on the 2254s. The "A" or "B" link buses accommodate tying multiple units in a console.

EQUALIZERS

While we're talking about Neve stuff (pay attention folks, the numbers are gonna fly by at a fast and furious pace), the Neve 1073 is probably the most famous of all Neve input modules. It features a wonderful mic pre, line input and an equalizer. There are two other modules that could have been ordered as alternates for the same console—the 1066 and its Cadillac sister, the 1084. The 1073 has a 3-band equalizer with a highpass filter.


The EQ points are: 12kHz shelving on the high band, six points in the mid band (7.2k, 4.8k, 3.2k, 1.6k, .7k, .36k), and four available frequencies on the low band (220, 110, 60 and 35 Hz). The 1066 has a 10kHz shelf on the high band, five available points on the mid (7k, 3.6k, 2.4k, 1.2k, .7k) and the same four on the low. It also has a highpass filter. Needless to say, the 1066 and the 1073 complement each other very nicely due to the variations in frequency points.

The 1084 has 10/12 15kHz selectable shelving frequencies on the high band, the same six points on the mid band as the 1073, and indeed the same four on the low band. It also features high- and lowpass filters, allowing you to have a bit more control over your high-frequency boost. The coolest part of the 1084 is the high "Q" switch available on the midrange band. "Q" refers to bandwidth—the higher the Q, the tighter the bandwidth. This lets you get a bit more specific with your midrange equalization.

A 1084 without a line input control, black plastic knobs/switches with light blue caps, is a 31102. This is the little fella found in the 8066, 8058, 8068, 8088, etc. consoles. (Yeah, there is a line input, but it's unbalanced and lacks control function; if you know that much this article isn't for you anyway.)

These are the primary 3-band mod-


Ten Years of Warmth



It all started with the Summit TLA-100A tube leveling amplifier. If you bought one back in 1985, it's probably still working. And, worth more now than what it cost new.

Summit's growing family now includes the TPA-200B mic preamp, EQP-200 program equalizer, EQF-100 four-band equalizer, and the DCL-200 dual compressor-limiter. All share Summit's distinctive sound, and, of course, quality throughout.

HEAR THE WARMTH™.



Summit Audio, Inc.® • P.O. Box 1678 • Los Gatos • California • 95031
(408) 464-2448 • Fax (408) 464-7659

SEE US AT AES BOOTH #1328

USE READER SERVICE CARD FOR MORE INFO

You've known us by many names over the past

1978 **18** 1996
YEARS

We want you to know

EAR™

can do it all!

▶ SEEN IT
CONNECTED IT
▶ HEARD IT
▶ PRODUCED IT
▶ SOLD IT
▶ BEEN THERE

SOLUTIONS FOR POST-PRODUCTION,
MUSIC RECORDING AND MULTI-MEDIA
NETWORKING TECHNOLOGIES

Turnkey & Leasing
Se Habla Español

EAR™ PROFESSIONAL AUDIO/VIDEO

2641 E. McDowell Phoenix, AZ 85008 602.267.0600
fax: 602.275.3277 e-mail: Info@Ear.Net www.ear.net

World Radio History

USE READER SERVICE CARD FOR MORE INFO

THE DIGITAL COMPANY

Experience The Industry's WIDEST SELECTION

Why

waste time and money canvassing the country when one call to **EAR** will do it all?

If

you need complete digital workstation systems or computers and peripherals,

call **EAR** for:

- Most Extensive Selection in the U.S.
- Leasing, Buy/Sell/Trade
- New and Used, Buy/Sell/Trade

"se habla español"
15 Years of Excellence



- AVID
- DIGIDESIGN
- FOSTEX
- OPCODE
- OTARI
- PANASONIC
- ROLAND
- TASCAM
- YAMAHA
- THE UNICORN

THE CONSOLE COMPANY

Experience The Industry's WIDEST SELECTION

Why

waste time and money canvassing the country when one call to **EAR** will do it all?

If

you need consoles, multitracks, digital processors, workstations, or complete systems.

call **EAR** for:

- Most Extensive Selection in the U.S.
- Leasing, Buy/Sell/Trade
- New and Used, Buy/Sell/Trade

"se habla español"
15 Years of Excellence



- RAMSA
- SOUNDCRAFT
- SOUNDTRACS
- TAC
- TRIDENT
- YAMAHA
- OTARI
- AMEK
- AMR
- MACKIE

EAR™ PROFESSIONAL AUDIO/VIDEO
2641 E. McDowell Phoenix, AZ 85008 602.267.0600

THE MULTITRACK COMPANY

Experience The Industry's WIDEST SELECTION

Why

waste time and money talking to dealers offering THEIR limited selection of multitrack recorders?

One

phone call to The Multitrack Company and the choice is yours...

call **EAR** for:

- Most Extensive Selection in the U.S.
- Leasing, Buy/Sell/Trade
- New and Used, Buy/Sell/Trade

"se habla español"
15 Years of Excellence



- ALESIS
- AVID
- DIGIDESIGN
- FOSTEX
- OTARI
- PROTOOLS
- SESSION B
- SONY
- TASCAM
- YAMAHA
- (and OTHER Digital Bricks)

EAR™ PROFESSIONAL AUDIO/VIDEO
2641 E. McDowell Phoenix, AZ 85008 602.267.0600

ules of the early 80 Series desks. (I could write another thousand words on the subtle differences of the other models in this range, but I'll spare you.) They are also of the 1.75x8.75-inch frame size. The other frame size is 1.75x12 inches. The most common 3-band module in that size is the 1064. It has the same function as a 1066 (EQ points) except instead of a dual concentric frequency select/boost cut function, they are laid out on two separate switch assemblies. It is important to note that all of these models are Class-A designed throughout.

In the same frame size as the 1064 is the 1081. This is the powerhouse of Neve modules from a functional point of view. It has a 4-band equalizer that features multiple frequencies, selectable on the high and low frequencies, and a switch enabling both shelving and peak/dip use. The two midrange bands also have hi-Q functions, allowing remarkably specific equalization.

The beauty of most Neve modules is that Rupert Neve (everyone on your knees and salaam toward Texas, please) is so much smarter than the rest of us; he built modules that really couldn't be used to make things sound bad. There are generations of engineers who look like incredible geniuses because Neve wouldn't allow us the tools to screw up our audio. On the 1081 he gave us the tools, so I implore you to use the power wisely.

On a kind of technical note, the 1081 employed a Class-B output stage. There is nothing bad about the models with the "push/pull" output stages. They will not achieve the same rich, flowing low-end characteristics of their 3-band Class-A brothers but give a better low-end punch and a slightly "airier" top.

Most of the "broadcast" series modules I have heard have the same output stage. The 3115 has an equalizer comparable to that of a 1066. The 3114 has functions comparable to the 1084 (sans hi-Q switch). There are many more variations in this class; these are the two we see most often. Be very careful when purchasing broadcast series modules, because many of them have the dreaded 5534 IC chip. Basic rule of thumb: If the module runs on 15 VDC, it's a 5534 model and is to be avoided.

The equalizer in the 8078 console is called a 31105. For all intents and purposes it is the same as a 1081, except it has logic functions so you may put the entire console in mic or line input at the flick of a switch, instead of turning the switch on every individual input

module. In a 40-input desk, this will save you a bunch of time. This is a good thing.

Referencing the 10 Series input modules to the 1272 mic amp for a moment, you will find the same input, same output transformer and the same B283 gain card in the 1272 as you will in the mic section of a 1073 (etc.), thus it sounds the same. On consoles like the 8014, you will actually find the 1272 used as the talkback microphone amplifier. Most of the routing modules (1883, etc.) also have the same input and output transformers and a half-filled B283 card. As Mercenary has a few hundred routing modules in stock, we started building them into mic pre's (shameless product plug).

Personally, I really don't like equalizers much. I've always felt that if you're a really good engineer, and you choose your microphones and their positions



Lang PEQ-4

wisely, equalization is unnecessary. Granted, when you need to work too fast, they are a very handy tool and, when used sparingly, will enhance your project. Most of the modern console manufacturers seem to agree with me—otherwise their equalization sections wouldn't sound as terrible as they do.

Well, as long as we've opened up that EQ can of worms, let's spend a couple of minutes on some of the cooler old ones. Older equalizers tended to be closer to tone controls. They were regional devices.

The Trident A range module is one of the input modules that combined four-band function with wonderfully musical characteristics. Trident later came out with a single-rackspace, 3-band fully parametric, which gives unknowing users the opportunity to make something sound bad. Caution is greatly advised, grasshopper.

Trident consoles were, of course, originally built for Trident Studios in London. The owners of Trident Studios allowed their staff technical department the freedom to go off on their own and start a console company. The world is a better place because of this decision.

During the late 1960s, the folks over at Olympic Studios (also in London) had a genius named Dick Swettenham

on their staff. He invented the Helios console. The original desk from their studio now lives at Keith Grant's house, and the important bits were built into his custom Raindirk console. Grant is making some of the most exciting recordings (from an audio perspective) with these modules to this day. The original modules were used on Jimi Hendrix's *Are You Experienced?* album.

Olympic console number two was also built for Olympic. It can be heard on the Rolling Stones' *Let It Bleed* and *Beggars Banquet*, and a copy of the desk was made for the Stones' mobile truck for the recording of *Exile on Main Street*. Folklore says that Chris Blackwell of Island Records wanted his artists to record in his studios, but they didn't want to because he didn't have one of these cool Helios desks. Chris set up Mr. Swettenham with his own company and ordered the first five units.

Mercenary purchased two of the Island desks for a client a couple of years ago, but they weren't quite as cool as the original "Stones" desks, in my humble opinion. Helios modules are still available in loose form and are well worth investigating for the serious audio professional.

The kings of equalizers for equalization's sake are now made in Virginia by a firm called API. They make an outstanding mic pre and, dollar for dollar, the best-sounding console under current manufacture, in terms of form without overkill function. (The Amek, Rupert Neve-designed 9098 is, in my opinion, the best-sounding desk that does everything but wash your car.)

API's equalizer design is as cool as a Neve, with its own (different) tone. Different, yes, but neither superior nor inferior. It can be chosen as the right tool for the job. When used wisely, the 550, 550A (a 550 with four additional frequencies) or the 550B (the new 4-band version—same design principle, equally cool sounding with greater flexibility) are very powerful tools. The 560 (10-band graphic) just *rules*. Feel free to book Kooster McAllister's Record Plant Remote truck out of New Jersey to learn how great audio can be. His 48-input API console with 560 equaliz-



“if
art doesn't
communicate,...

George Duke

... then it doesn't really fulfill its goal. It's not doing what I think it's supposed to do. As an artist, I feel like I haven't achieved my goal unless I touch that one person out there. I DO believe that spiritually sometimes things are given to me. I mean, a melody will pop into my head and I don't know where it came from. You know, it certainly didn't come from me.

I'm fortunate enough to have a studio so I basically can record whenever I want. And so the creative process is changed. I'm just making music. Whatever pops in my head is what I'm doing; whatever style it is, that's what it is. And I'll put the album together later. Well, that's a luxury. The diversity is what is important. But in all seriousness, if you don't have the tools to make this work right, it's not going to happen. To be able to express myself and do all of the myriad of things I wanted to do. – For what I CAN do and

what I KNOW I'll be able to do in the future because there's product development going on all the time. – Seriously, I'm doing stuff I wouldn't have ever dreamed that I'd be able to do. It's not so much to do with a commitment to the product as much as I have a commitment to MY work, and the art that I'm trying to do. – It keeps me going in music. It's like, 'MAN, this is interesting! I can do this; I can do that!'

George Duke



Logic
A U D I O

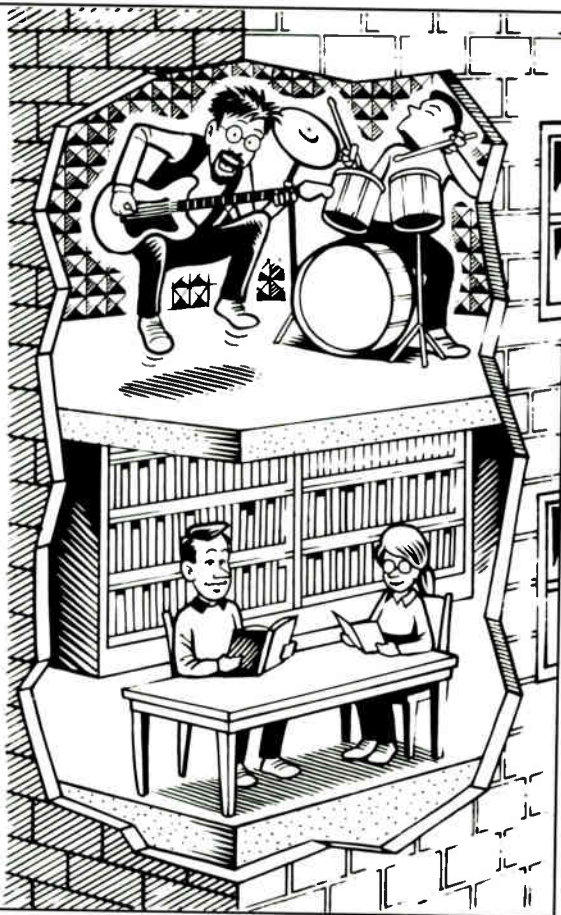
Sound and Noise Control Products with Solutions

CALL FOR
A FREE CATALOG
AND SAMPLE
1-800-782-5742



**ACOUSTICAL
SOLUTIONS
INC.**

SEE US AT AES BOOTH # 257



USE READER SERVICE CARD FOR MORE INFO

ers changed my life. The rest of my days on earth will be spent trying to re-create what I heard in that truck.

It wasn't until the '70s that a couple of guys in Maryland added a bandwidth control. These smart fellas were Burgess MacNeal (currently of Sontec) and engineer/producer George Massenburg. The box they built was called the ITI MEP-230. It featured three bands of fully parametric EQ, plus a 10kHz shelf and a selectable 50Hz/100Hz low shelf. Even though it was parametric, it still seemed that no matter how hard you tried, you couldn't make anything sound bad. They made a console model as well, called the ITI MEP-130—same function without the shelving band, and amazingly musical for a parametric.

Both Sontec and GML build wonderful units. Both seem to be functionally based on this earlier design but have cleaned the audio to a "straight wire" type of sound. The GML seems to me to have a bit more spaciousness, but the Sontec is about half the price (± 3 dB). Let me add that both firms are also building mic pre's and compressors that feature the same impeccable audio standards.

Parametric EQ is, for the most part, used badly. It gives the user the ability to phase-distort a signal into complete submission. Very few in our profession should be granted a parametric license. This is one of the reasons that older EQ designs are so sought-after.

Recently, the term "British EQ" has popped up in our vocabulary. The British equalizers that I have used are all so radically different-sounding that this is, at best, an erroneous term. Let's clue the marketing departments that there is as much of a British EQ sound as there is a British compression sound, as there is a British mic placement sound...ad nauseam.

Now that I've gotten that off my chest, let's talk about a few other old, yet cool, EQs. In other words, for those of you who will insist to your dying day that there is a British EQ sound, let's talk about New Jersey. New Jersey brought us a company called Pulse Technologies, Pultec for short. They made the ever- (and increasingly) popular equalizer called the EQP-1A.

Of course first there was the EQP-1, which had a bandwidth control on the high frequency, but the attenuation function for the high band worked off the same frequency selection control as the boost. The EQP-1A's high-frequency attenuation control worked off a separate switch. It was, for all intents

**BETH WALTERS
JOHN STORYK
SAM BERKOW**

ARCHITECTURAL
and ACOUSTICAL
DESIGN for
CRITICAL LISTENING
ENVIRONMENTS

SYSTEMS INTEGRATION
ACOUSTIC ANALYSIS

ph. 914-691-9300
fx. 914-691-9361
e-mail: wsdg@mhv.net
web: www.wsdg.com

**WALTERS STORYK
DESIGN GROUP, NY**





The new Time Machine II offers unprecedented control over time and pitch with new, true harmonic correction. Hear the difference for yourself! - Call, fax or email now to order your FREE Logic Audio Demo CD.

No Laws of Physics Had To Be Broken.

Now: For Macintosh and Windows '95



Logic

A | U | D | I | O

Sequencer

- User configurable, virtual MIDI Environment
- Real Time, non destructive editing
- 960 ppq resolution
- 1/10,000 BPM Tempo Resolution
- Unlimited tracks
- 90 definable screen sets per song
- MIDI Groove Templates
- Reversible real-time quantization
- Multiple Linked editors
- Extensive MMC functions
- Automatic mapped drum notation
- Full Text, Chord and Lyric Support
- Extensive Symbol Palettes
- Local formatting
- Multi-bar rests
- Non destructive Graphic Quantize

Digital Audio

- 4 to 48 Tracks
- Simultaneous support of multiple Digital Audio Hardware
- Incredible suite of DSP Algorithms known as The Digital Factory™
- Pitch Shifting with harmonic correction and formant shifting
- Quantize or swing Audio
- Audio to Score, Audio to Groove Template
- Stereo Sample Editor

Scoring

- Unlimited Staves
- 16 polyphonic voices per stave
- Guitar Tablature

- Unlimited Virtual Audio Tracks
- Automatic tempo calculation of any audio region
- Realtime Waveform Editing

Instead of hiding behind a specific feature like: Pitch Shifting Audio or Audio to MIDI, Logic Audio provides the complete solution for Digital Audio and MIDI production. Yes, these features exist in Logic Audio, for instance Pitch Shifting Audio with Harmonic correction is available in Logic Audio 2.6. Unlike the others, the Time Machine II works with

Stereo files and works in much less time than the competition. No laws of physics had to be broken, just the application of the best programmers in the business. Stop listening to hype and start looking at what the Professionals use. The facts are clear, Logic Audio is the only complete solution, no matter what platform you choose. Available now at fine Music and Computer Stores worldwide.

and purposes, a lowpass filter that engaged at 20, 10 and 5 kHz. The highest frequency available on the EQP-1 was 12 kHz, while the EQP-1A allowed you to boost your audio at 16 kHz. (By the way, the EQP-1A3 is exactly the same unit as the EQP-1A in a two-RU form. The face plate was also the brushed-aluminum style as opposed the green of the EQP-1 and 1As.)

The EQ-H2 was very similar to the EQP-1—with 12 kHz as the top frequency—but it lacked the bandwidth control of the EQP-1. It was also two RU instead of three, so it looked a little less impressive. Like the MEQ-5, it was available in both "Pultec green" and brushed-aluminum faces. I have never heard a difference between paint jobs. The low-frequency selection of the EQ-H2, EQP-1, and the EQP-1A and EQP-1A3, were identical. The available frequencies were 20, 30, 60 and 100 Hz. The boost and attenuate controls had different bandwidths, so some very cool effects can be achieved by turning both simultaneously.

The MEQ-5 was the midrange EQ, sporting two bands of boost and one of cut. It is exceedingly useful on guitars, bass and a few other instruments. Like

all Pultec equalizers, they were not active tube EQs. The actual equalization took place in a passive circuit: the tubes are used for an input buffer and gain makeup facilities for the inherent insertion loss of a passive circuit. Toward the last days of Pultec, they began to employ an API 2520 operational amplifier for this task. I have found that the Pultecs using the API 2520s are quieter and seem to have a punchier low-end characteristic.

Concurrently with Pultec, another New Jersey company called Lang was building equalizers in a similar manner. They had the added facilities of 20 kHz for a top frequency, and again to my ear, are sweeter-sounding than the Pultec. Their solid-state models were the PEQ-2 and PEQ-2A. The tube model was the PEQ-1. Not only do they sell for less (substantially less) than Pultecs today, but I find them to sound far sweeter.

Another manufacturer that made passive EQs was Universal Audio. Theirs didn't have the gain makeup facilities that the Pultecs and Langs employed but sounded no less brilliant. Not long ago, Bernie Grundman Mastering purchased all we could get our hands on, so you

need not believe a sales weasel like me to know that they *rock*.

WHERE TO LEARN MORE

There's a whole lot of stuff that was left out here due to time and space constraints. I've tried to answer the major questions I get asked 20 times or more per week. There is tons of theoretical information that was also omitted—frankly, if you wanted to be bored into submission, you could read the *Journal of the AES*. Of course, if you did read the *AES Journal*, you sure wouldn't need my *Reader's Digest* version of electronic design theory anyway.

In every city in the world, there is a saloon where the real engineers hang. You will learn more about audio theory in any of these watering holes than in any classroom. Hang with the pros, with your ears open and your mouth shut. Try everything you hear about and for God's sake, learn to hold your liquor. ■

Fletcher entered the world of recording in 1980. He started Mercenary Audio in 1989 with \$50 and a hangover. Prefers Harley Panbeads to Blockbeads, enjoys Tex-Mex cooking and recently took up audio-related sculpture.

THE ART OF MASTERING. IT'S EASY WITH STUDER'S NEW D424.



SEE US AT AES BOOTH # 611

WITH A HALF-CENTURY of experience in professional audio tape mastering behind us, Studer announces a new *magneto-optical mastering recorder* that is unrivaled for sound quality. Our new D424 M.O. Recorder features 24-bit recording technology via advanced A/D/A converters and offers over one hour of *uncompressed* audio on standard ISO 1.3/2.6 gigabyte cartridges. The 424's familiar "tape deck" functionality offers non-destructive *LaserBlade™* editing and is fully file compatible with digital audio workstations for direct file interchange — including EDL's and .WAV Audiofiles. Get more detailed technical information now.

STUDER
PROFESSIONAL AUDIO EQUIPMENT
A Harman International Company

Studer. Engineering Quality.

Nashville: 615/391-3399. Worldwide Distribution: Studer, Regensdorf, Switzerland +41 (0) 1 870 75 11.

USE READER SERVICE CARD FOR MORE INFO

Hafler[®] PROFESSIONAL amplification

POWER for the STARS

image • control • depth • accuracy • transparency • power



"My mixes start in the basement...That's where the bottom end lives. And then, all of a sudden like magic, the sun comes up and the top end is born. Hafler Amplifiers are Fat from the bottom up!"

Gary Lux
Recording Engineer/
Producer
Gary uses 3 Trans•nova
D.I.A.B.L.O. 950E's



"Hafler Amps: More powerful than a 2 day old diaper!"
Cartene Scovill
with favorite engineer, producer, dad, Robert MusiCanvas, SAG Inc. Eldon's Boy Records



"At Spotted Peccary Studios, we have found no other amplifier that even comes close to the Hafler Trans•nova for its depth-of-field and definition, smoothness and clarity, and warmth and musicality. The Hafler Trans•nova is understatedly outstanding in a class of its own."

Howard Givens
Spotted Peccary Studios



Another Hit! New Mo Jazz release "In the Zone"

Wayman Tisdale
Recording Artist



"The new Trans•nova, regardless of power rating, out performs any other amplifier in the industry."

Michael Jones, Conservatory of Recording Arts and Sciences



Nona Hendryx
Recording Artist
Producer
Free Records



"Real world training on industry standard equipment Hafler Trans•nova, the only amplifier in our racks."

Kirt R. Hamm, President
Conservatory of Recording Arts and Sciences

HAFLER PROFESSIONAL, A DIVISION OF ROCKFORD CORPORATION • TEMPE, ARIZONA 85281 USA
1-800-366-1419 • INTERNATIONAL FAX 602-967-8132 • IN CANADA, CONTACT CABLE TEK 604-942-1001

MADE IN THE USA

©1996 Rockford Corporation

USE READER SERVICE CARD FOR MORE INFO

MAKE WADES WITH EVERY MIX

The Rising Tide

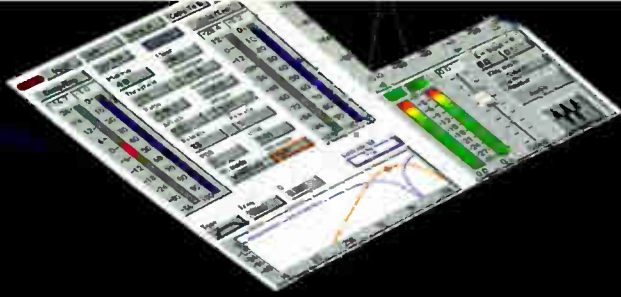
Today's audio pros depend upon Digidesign's Pro Tools — more than all other workstations combined. One reason for Pro Tools' phenomenal success is the Digidesign TDM Bus. This 256-channel digital mixing and routing system delivers exceptional performance. Exceptional value. Exceptional upgradability. Plus it lets you add a wide range of signal processing Plug-Ins with just a floppy disk.

So where do today's audio pros turn for advanced TDM Plug-Ins? They turn to Waves — more frequently than all other third-party companies combined.



The First Wave

Waves has worked side-by-side with Digidesign since even before the launch of TDM. Starting with the 1993 release of the acclaimed Q10 Equalizer, to the recent, much-anticipated release of TrueVerb, Waves has helped unleash the power of Pro Tools to thousands of people.



The Most Waves

Mixdown means signal processing.

And with more TDM-based solutions than anyone else, signal processing means Waves.

Such as the essential C1 Compressor/Gate. The spatially enhancing S1 Stereo Imager. The mastering-ready Q10 ParaGraphic EQ. The spectacular PS22 StereoMaker.

The acclaimed L1 Ultramaximizer. The new, incredible-sounding TrueVerb. And many other powerful solutions.

Each Waves Plug-In delivers an amazing degree of control, yet is easy and fast to use. No other Plug-Ins are better-suited for Pro Tools. For only Waves gives you PCI-compatible WaveShell-TDM technology, which maximizes Pro Tools' DSP capabilities. Only Waves gives you Component Assignment, to break each Waves processor into 'component' Plug-Ins for use in every TDM channel (or in custom processing chains under SDII). Only Waves gives you DSP Resource Management, allowing you to open multiple Plug-Ins or components on single DSP chips.

All of which is a fancy way to describe a simple, vital fact:

Only Waves delivers maximum performance

and efficiency.

SEE US AT AES DEVELOPER BOOTH # 655



us Waves • 6716 Central Ave. Pike, suite 8
Knoxville, TN 37912 • USA • tel: 1.423.689.5395
fax: 1.423.688.4260 • e-mail: waves@waves.com

Waves • Europe/Middle East • tel: 44.1637.877170 • fax: 44.1637.850495
Waves Headquarters • Tel-Aviv, Israel • tel: 972.3.5107667
fax: 972.3.5105881 • e-mail: support@kswaves.com

World Radio History

The Best Waves

The Waves commitment to

sonic excellence means substance

over flash. Listen carefully to any Waves

Plug-In, and its comprehensive Setup Library, and you'll hear what we mean.

The Q10, for instance, includes 200 factory Setups — a veritable arsenal of user-customizable tools. Such as classic

mastering EQs. Precise pre- & de-emphasis filters. Noise reduction. Plus scores of other effects. All from just one Plug-In. From the C1 to TrueVerb, Waves Setup Libraries give you the equivalent of many racks' worth of specialized, high-end processors — each with an intuitive user interface, each fully programmable.

And only Waves offers the WaveKey, which gives you unlimited installs, free from copy-protection hassles.

Get Swept Away

It's surprising just how easy and affordable it is to get the most from

Digidesign's Pro Tools. Once you own the system, you can start making Waves for an incredibly low cost — and you can install or upgrade any Waves Plug-In in minutes. Take the plunge.

Call Waves today for the complete story, or visit www.waves.com.

SEE US AT AES BOOTH # 855

digidesign[®]



A Division of Avid • 1.800.333.2137 • ext. 258
3401-A Hillview Ave. • Palo Alto, CA 94304 • USA
1.415.842.7900 • fax: 1.415.842.7999

www.digidesign.com

40 YEARS AT CAPITOL STUDIOS

by Maureen Droney

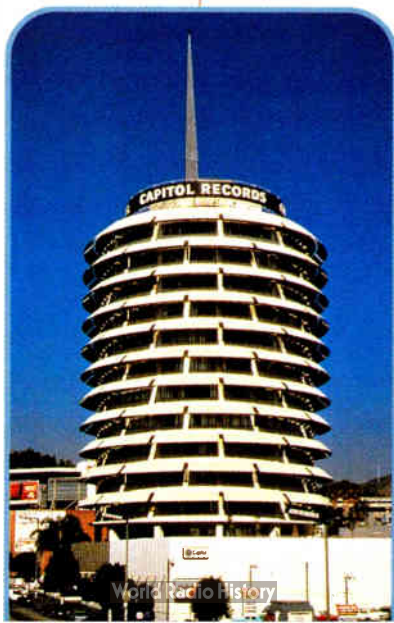
In Los Angeles, it's one of the first places an engineer thinks of when he or she has to book a room to record an orchestra. At Capitol they have the headphones, the mics, the music stands—but most of all they have the expertise. Capitol is also one of the first places you think of to call if you need EDnet capability for mix approval, or for a long-distance overdub. It's this combination of old and new that makes Capitol Studios unique. Having endured boom times and lean times in its 40-year history, the facility has once again pulled into the first rank of technologically advanced studios, while still managing to remain a bastion of tradition.

Capitol's glory days began in 1956, when it became the first studio in the world created to make "high-fidelity" recordings. The record company had been launched in 1942, the brainchild of three men: Hollywood music store owner Glen E. Wallichs, songwriter Johnny Mercer, and composer/film producer Buddy DeSylva. The '40s brought hits for the fledgling label by Stan Kenton, Peggy Lee, Dean Martin and, of course, Nat King Cole, whose single "Nature Boy" went Number One in 1948. In 1950, the original

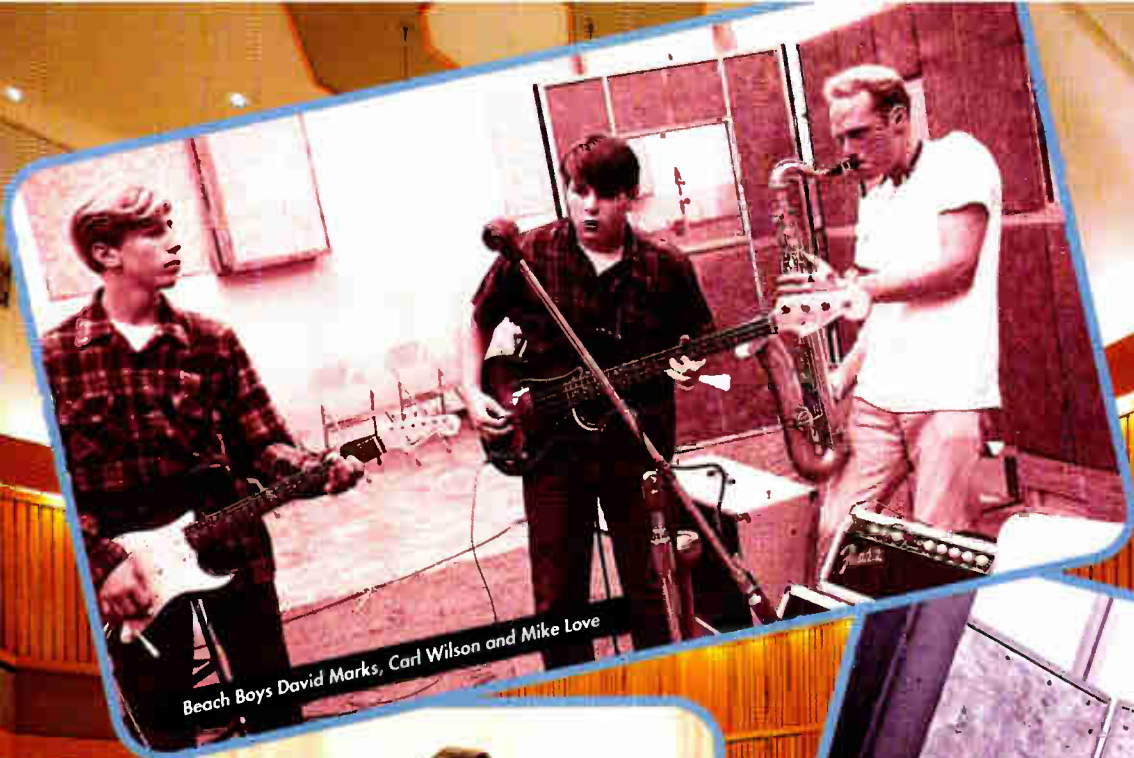
Capitol Studio opened on Melrose Avenue, and by the mid-'50s, the chart success of such Capitol acts as Les Paul & Mary Ford, trumpeter Ray Anthony, Jackie Gleason (some may not realize Gleason was known for his romantic mood music, and has been called "the man who put the 'boom' in the baby boom"), satirist Stan Freberg, Frank Sinatra and Nat King Cole had provided the means to open the kind of ambitious recording facility the partners had always wanted. In 1954, plans were approved for the landmark Capitol Tower, and in January 1955 a controlling interest in Capitol Records was purchased by the British company EMI, thus aligning the new studios with those other EMI-owned studios in London, which were to become the legendary Abbey Road.

HYGIENIC LEANING TOWER OF PISA

Although the base of the Capitol Tower is rectangular, the building was designed as the world's first circular office building, and it was also the first completely air-conditioned building in Hollywood. At the time it was called a "straightened, hygienic-



ALL CONTEMPORARY CAPITOL PHOTOS: PETER FIGEN



Beach Boys David Marks, Carl Wilson and Mike Love



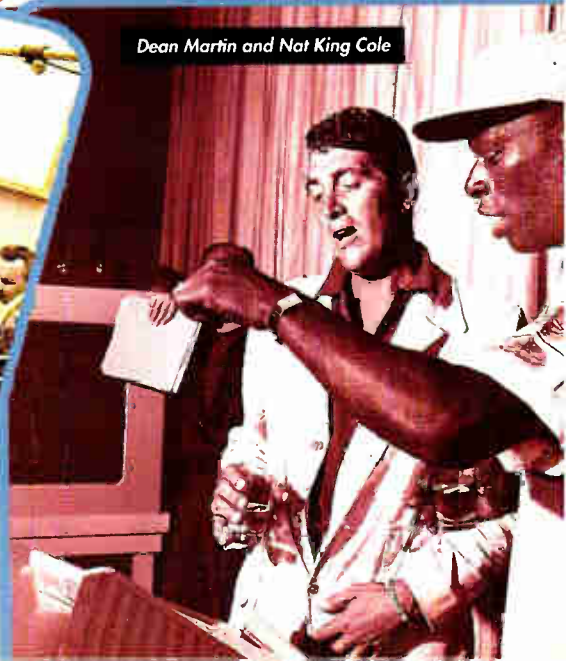
Judy Garland & arranger/conductor Gordon Jenkins



Peggy Lee



Frank Sinatra



Dean Martin and Nat King Cole

World Photography



shiny enamel. Space limitations and construction costs make live chambers a rarity these days, and those at Capitol are still much in demand—today they're

which were later replaced by Quad 8 desks, one of which remained in Studio A until the mid-1980s. The studios' inaugural session took place on February 22, 1956, with Frank Sinatra conducting a 56-piece orchestra in Studio A, recording compositions by Nelson Riddle that were released

ic version of the Leaning Tower of Pisa" in the press. Each of the ground-floor studios was floated on a layer of asphalt-impregnated cork to provide insulation from external vibrations. Wall panels and movable reflecting surfaces were constructed from birch wood on one side, and from Fiberglas on the other to provide for a selectable range of ambiances. Capitol, the first label to abandon the old acetate recording system in favor of magnetic tape, now owned the world's most high-tech studio facility.

Guitarist and recording innovator Les Paul designed the eight live echo chambers located 25 feet below the building's parking lot. Constructed of reinforced concrete, the outer walls of the chambers are ten inches thick, with 12-inch ceilings. They are shaped to be nearly trapezoidal, with contoured ceilings, and are painted with



Early post-production room

even rented out via telephone lines to people working at other studios.

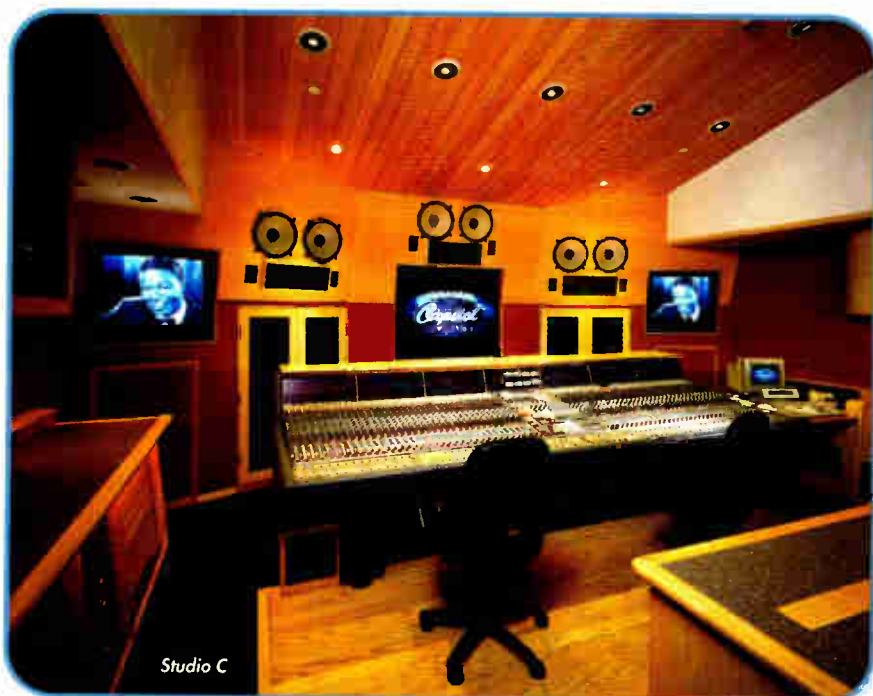
The three Capitol studios were originally designed by Jack Edwards and at the time included 3-track Ampex machines and custom-designed consoles,

on the *Tone Poems of Color* instrumental album.

'60S HITS RECORDED AT CAPITOL

The late '50s saw 13 more albums by Sinatra, along with records by the Kingston Trio, Tennessee Ernie Ford, Gene "Be-Bop-A-Lula" Vincent & His Blue Caps, and soundtrack albums for the Broadway smashes *Oklahoma*, *Carousel*, *The King and I* and *The Music Man*. The '60s brought more hits for Capitol Records—many of them recorded at Capitol Studios—by the likes of Wayne Newton, Bobby Darin, Lou Rawls, Buck Owens, Glen Campbell (including "Wichita Lineman" and "Galveston") and, of course, the Beach Boys (who, ironically, became the first U.S. major label rock group to move out of a company's in-house recording studios, thus spearheading the trend that led to the demise of most label-owned studios). Other '60s hits included "I Love You Because" by Al Martino, the cast album for *Fanny Hill* featuring Barbra Streisand and Bobbie Gentry's "Ode To Billie Joe," recorded in Studio C. Of course, the label's biggest sellers in the mid-'60s, The Beatles, recorded at EMI Abbey Road in London.

It's always a daunting task to keep a



Studio C

PHOTO: PETER PIGEN

7'3", 290 pounds.
Intelligent. Terrific personality.



Solitaire™

- Starting under \$26,000
- On board dynamics processing
- Internal automation, moving fader or VCA

SOUNDTRACS

See us at AES Booth 934.

For more information call (516) 393-8520. Soundtracs products are now fully supported and marketed in the United States by Korg USA, Inc. ©1996 Soundtracs USA.

USE READER SERVICE CARD FOR MORE INFO

World Radio History

OASIS



MASTERING

Eddy Schreyer

Engineer

**Full service
audio mastering**

OASIS OFFERS

**Compact disc
mastering**

Digital editing

Lacquer cutting

Eric Clapton

Babyface

Bryan Ferry

Tracy Chapman

Peter Gabriel

Hootie & The Blowfish

Take 6

Hammer

Tupac

Johnny Cash

**11335 Ventura Boulevard
Studio City, CA 91604**

818.980.0411

FAX: 818.980.7447



PHOTO: PETER EIGEN

Studio A

studio "state-of-the-art" while dealing with the high costs of new equipment, and that task became even more difficult when major artists no longer felt compelled to record at studios owned by their labels. In 1968, Capitol opened its doors to outside projects in an attempt to profit from that trend, but by the 1970s its studios were definitely the worse for wear. An upgrade of the rooms led to the purchase in 1977 of a 32-channel 8068 Neve with Necam 1 automation, a console that is still a selling point of Studio B, although these days it features Flying Faders automation.

The next upgrade came in the late

'80s, with a redesign of Studio A by Jeff Cooper, and the installation of a Neve VR SP with a film production module for LCRS capability. It was at that time also that a removable dividing wall was built between the recording rooms of A and B. The wall was put to use for the Frank Sinatra *Duets* albums, for which producer Phil Ramone worked from control room A, with most of the main orchestra in Studio A with Sinatra, while the strings were isolated in Studio B.

RECESSION AND HIGH OVERHEAD

By the time engineer/producer Michael Frondelli was hired as creative director

Mastering Studio RR1



PHOTO: PETER EIGEN

USE READER SERVICE CARD FOR MORE INFO

Presenting some of the best things ever heard on our studio tapes.

"In our search to find a replacement for 996, we found something better. The BASF SM 900 runs clean and is transparent-everything else is an effect. It's our new house tape."

- Joe, Bruce, Dee Robb
Cherokee Studios

"It created a whole complete area of sound that did not exist before."

- Michael Beinhorn

"I had to look to see if the band was in the control room or playing live, because this stuff has so much dimension to it."

- Don Smith

"SM 468 is really clear, sounds closest to my console, and has been my favorite for 10-15 years. Now, though, everyone wants the elevated levels. SM 900 gives me the compression at the harder levels, plus the clarity of the 468."

Joe Chiccarelli



"The music sounded better coming off the tape than it did going on it."

- Skip Saylor

"It's simple. I use it because I like it. I like it for the way it sounds!"

- Richard Dodd

"I've tried everything else. Once."

- John Jennings

Demand It.



BASF

SEE US AT AES BOOTH # 911

To hear the tape that's causing all the talk call:

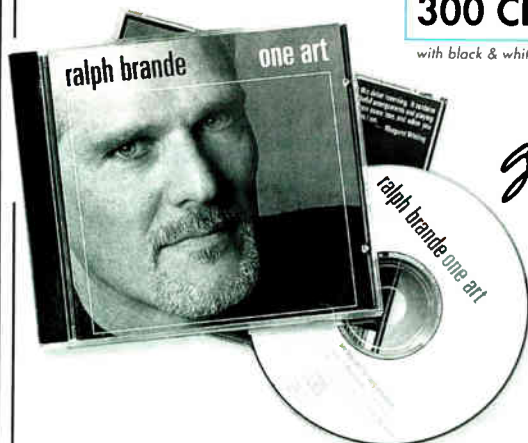
USA 1-800-225-4350; FAX: 1-800-446-BASF; Canada 1-800-661-8273; Europe (49) 621-59 20-366

USE READER SERVICE CARD FOR MORE INFO

CDs IN 3 WEEKS!

300 CDs for only \$1,590

with black & white inserts



*Includes free
Graphic design!*

"The people at Disc Makers are fast and good. I was impressed with their willingness to work with me until I was completely satisfied with my finished product."

—Ralph Brände

Complete package includes:

- FREE Deluxe Graphic Design
- Insert film and printing
- Proof Positive® Reference CD
- Major Label Quality
- No-Fine-Print Guarantee

SEE US AT AES BOOTH # 128

Call today for your FREE,
1996 full color catalog:

1-800-468-9353

24 HOURS TOLL FREE

Outside USA call 609-663-9030; FAX 609-661-3458

<http://www.discmakers.com>



DISC MAKERS

AMERICA'S #1 MANUFACTURER FOR THE INDEPENDENT MUSIC INDUSTRY

USE READER SERVICE CARD FOR MORE INFO

of Capitol Studios in 1990, the complex was facing challenges that included an antiquated reputation, along with the continuing belief, even though it had not been true since 1968, that the studios were for the exclusive use of Capitol artists. Other problems included a general recession in the recording business and, particular to Capitol, very high overhead; Capitol is, to this day, one of the only remaining studios with a unionized engineering staff.

But there were also pluses. The studio had an excellent reputation for reliability, a plethora of new and old gear, and a staff that had expertise difficult to find anywhere else. Also onboard when Frondelli arrived were a skilled studio manager, Paula Salvatore, who had previously spent nine years running L.A.'s Sound City, and the highly experienced chief maintenance engineer Jeff Minnick.

"Labor costs were high," acknowledges Frondelli. "Capitol is union, with some engineers who have been working here for almost 40 years. But without their knowledge of some of these older mediums and formats that once existed, we wouldn't be able to move forward. You can't buy that experience. You can't even find it a lot of the time because it's just not out there. But we've got it. You know the phrase 'Time is money.' Well, with 50 or more players getting union scale, you need to know that things are going to work. Which is one of the things we've always provided at Capitol."

RECORDING TO 3-TRACK ON A 6-INPUT MIXER

Jay Ranellucci is one of those longtime Capitol engineers—he started at the Tower in 1957 and recalls how engineering experience was acquired back when he was coming up. "I started in the lacquer cutting room," he says, "then I was an assistant in the studios. I became a mixer when stereo first came out—we only had mono control rooms, so the stereo was done in another room with two microphones for the overall band effect, plus a feed from the various other mics that they were using for the mono. We were recording to 3-track on a 6-input mixer, so we didn't have that much to do! Some of the first sessions I did were Nat Cole and Ernie Ford. One of the nice things was we did everything at once. We didn't have to do a lot of overdubbing like we do today. It's more work in some ways to record everything at once, but with everyone there at the same time, there's

—CONTINUED ON PAGE 333

THIS IS THE REAL TUBE GEAR

MANLEY LABORATORIES, INC.

13880 MAGNOLIA AVE.
CHINO, CA. 91710 USA
TEL: (909) 627-4256
FAX: (909) 628-2482
emanley@netcom.com

Signal processing from

In the world's top studios and major mastering houses and even on the internet, people are raving about Manley. For us, it's as nice as hundreds of positive press reviews. Talk about WARM...

Vintage LA-2A's have always been studio favorites: "set it and forget it". Our Electro-Optical has become the preferred choice. Why? Because it works the same way, but it's new, reliable, built like a tank, and your signal goes through our own killer all-tube line stage nobody else can touch. As they say, "More better!"

<http://www.manleylabs.com>

Switching, detented, loggable MASTERING versions also available!

Waaaaay cleaner. You can even go completely transformer-less with our Enhanced Pultec EQ's (yeah, we make the MID version too.) Save that rack space! Only 1U. The all-time consummate EQ. Musical, useful everywhere.

By now you've heard about our Variable-mu Limiter Compressor. Flexible for tracking or 2-track buss work & mastering, it's taken off like **WILDFIRE!** Engineers put it on their "must-have" list and tell us there is simply no better limiter on the planet.

MANLEY STEREO "VARIABLE-MU" LIMITER COMPRESSOR

INTRODUCING

PAQRAT™

ROGER DEFINED IT RANE DESIGNED IT.

Roger Nichols: "I asked my friends at Rane if they could design a box that would let me record two channels of 20-bit audio onto four 16-bit tracks. So they sent me a prototype box called PAQRAT. Now I can easily store lots of 20-bit mixes without having to rent a \$25,000 digital machine that needs \$200 per roll tape"



Record 18 to 24 Bits On Your 16-Bit Multitrack Recorder

The RC 24 Recording Converter, known affectionately as the "PAQRAT", converts two 18-bit to 24-bit digital inputs into two pairs of 16-bit digital tracks—and simultaneously does the reverse!

From home studio to post-production suite, the PAQRAT enables an instantaneous quantum leap in digital capability from 16-bit multitrack recorders:

- Create 20-Bit Masters On Your 16-Bit Recorder
- Back-up Hard Disk Files Onto Affordable Tapes
- Use A 20-Bit ADC And Two 16-bit Tracks For Recording Primary Vocal or Instrument
- Record Full Quality From A 20-Bit Digital Console.

Two RC 24 Versions to Match Your Recording Format: the RC 24A provides the Alesis ADAT interface; the RC 24T provides the Tascam TDIF-1 interface.



Big savings and impressive returns for a surprisingly modest investment. Get the whole "taie" on the PAQRAT from your nearest Rane dealer.



GARY CHANG

PRAGMATISM IN THE MOUNTAINS



Gary Chang's personal studio in Calabasas, Calif., ten miles from Malibu, is approached through the winding lanes of the sage-covered, perpetually amber hills that ring L.A. Designed as part of the house that Chang and his wife built in this exclusive, gated community two years ago, the studio occupies a large room in the rear with its own glassed-door entrance facing the pool and a garden vista of those same mountains.

Not that Chang gets to spend as much time as he might wish contemplating nature. An accomplished composer with a list of major studio credits behind him (including *The Breakfast Club*, *Under Siege*, *Attica*, *The Substitute* and *The Burning Season*), during our visit he is coming up for air between ongoing (and seemingly endless) re-edits of *The Island of Dr. Moreau*.

After graduating from computer, music and composition studies at Cal Arts Institute, Chang became a protege of both personal recording pioneer and electronic music maven Morton Subotnik and film score composer and record producer Giorgio Moroder. He also played keyboards for scoring excursions by Robbie Robertson and Jack Nitzsche.

Chang's self-designed studio—the third personal room in his career—is built specifically for film work. One large room makes for easy access to his many vintage

keyboards and Synclaviers for composing. A 40-input Soundtracs Megas console and its Mackie 1202 sidecar are easily within reach. The room is large enough to accommodate his longtime engineer and friend Brian Reeves (who has recorded and mixed for many high-profile acts, including a track on U2's *Rattle and Hum*) and visits by Pro Tools editor Richard Whitfield, son of veteran film sound editor Ted Whitfield. An adjacent machine room holds a Sony/MCI JH-24 multitrack and Tascam DA-88, both synched to a Sony ½-inch video deck via a TimeLine MicroLynx system.

The burlap front wall covers a 16x8-foot, 500Hz bass trap; the rear wall holds strategically placed ART diffusors. The result, says Chang, is a recording and mixing room that's remarkably flat and requires little in the way of EQ, yet is far from sterile. In a home studio, you're more interested in keeping noise in than vibrations out, and that's easier to do. "The floor was built on 2.5 inches of plywood above an open space—sort of a stage. And its resonance has been subtly featured in several of Chang's compositions and recordings. "The challenge of a room like this is to find the best spots for each acoustical recording," Reeves says. "With the windows as reflective surfaces and this

resonant floor, there's really more possibilities to this room than you might at first realize."

Other than the occasional trip to a large room for orchestral work (such as the string-and-choir sessions he did in Toronto on *Moreau*), he doubts he could work any other way. In addition to their talents, the reason I gravitated toward guys like Moroder and Subotnik was because they all seemed so relaxed in the studio, and that's because they were their studios," he observes. "A lot of us who entered the successful phases of their careers in film scoring in the mid-80s were really the first generation to be completely comfortable with the notion of home scoring studios.

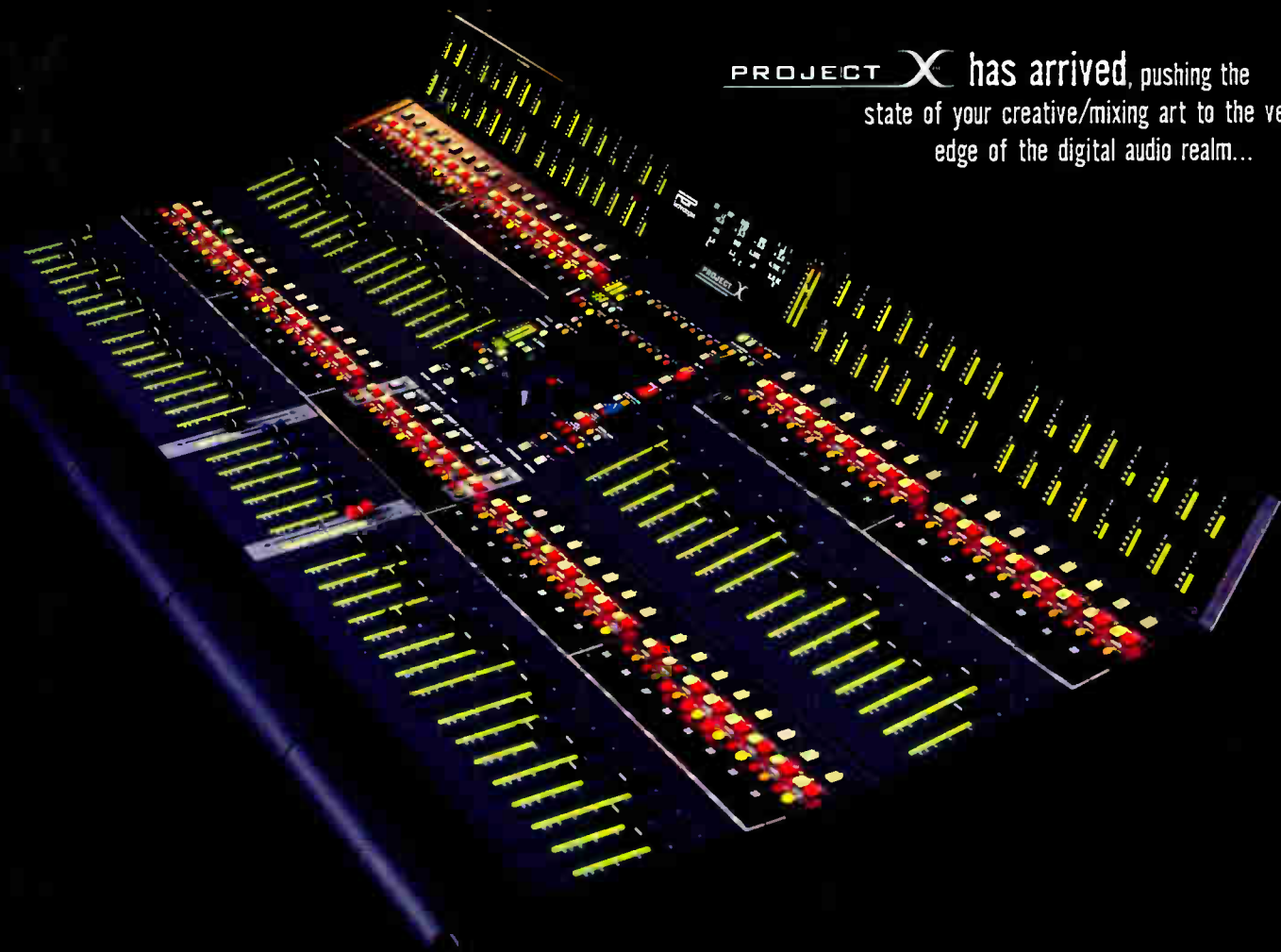
"This console was \$23,000 new five years ago, and it's more than fine for scoring a feature film on," he states. "The same goes for the Synclaviers. At this point I have no interest in reading more manuals. I look at new things to stay current, but I don't feel compelled to buy everything that comes out." Chang does, however, have some vintage outboard, such as his Neve 3104 Class A discrete mic pre's, and some Schoeps and Coles microphones. He also has the Dolby SDU-4 surround sound encoding unit, with three Meyer HD-1 monitors across the front and JBL THX-approved surround speakers on the ceiling. "That's just the way the music is also going for film in Hollywood," he says. "It's all going to surround.

What I really have to keep in mind is that I make my living writing little black dots on lined paper, and when the dots are good, money falls down out of the sky," he says. "So the personal studio agenda is not based on impressing anyone with equipment; it's based on getting the most out of what you're familiar with and making those little dots work for the director and the audience." ■

BY DAN DALEY

Pushing the State Of Your Art

PROJECT X has arrived, pushing the
state of your creative/mixing art to the very
edge of the digital audio realm...



RSP Technologies® proudly introduces an incredible new all digital, fully automated, modular mixing console. Custom configure your Project X to suit the most demanding of needs. Choose from analog with 20 bit converters, AES/EBU, TDIF®, or ADAT® I/Os to interconnect directly with MDMs or DAWs. Expandable in configurations up to 64 inputs, Project X offers 110dB* dynamic range, multiple DSP effects, complete automation of every mix function and snapshot. Each input channel includes dynamics control, HUSH® noise reduction, 4-band parametric EQ, Hi & Low pass filters, digital delay line, stereo linking and 8 aux. sends. Control it all without stretching from the comfortable center sweet spot in front of the Master Module and the joystick panner for the integral digital Circle Surround® Encoder. A full Project X console is only five feet wide! All I/O cards are located in the CPU rack along with the power supply and optional microphone preamplifiers. Interconnects between the control surface and the rack unit are via a power supply and serial digital cable per module. Having no connections between modules allows for many visually exciting and ergonomic console design possibilities. The digital audio world will never be the same. Neither will your art.

RSP
Technologies

SEE US AT AES BOOTH # 1301

2870 Technology Drive . Rochester Hills . Michigan . 48309 . 810/853.3055 . fax 810/853.5937 . WorldWideWeb <http://www.rocktron.com/rsp>

*Typical Analog In to AES/EBU Out.

AROUND THE WORLD BY DAT

AN INTERVIEW WITH DAVID PARSONS

“Sometimes I say to myself, ‘I’d give *anything* to have a couple more mics, or an ADAT or DA-88 that was somehow more portable.’” David Parsons says with a laugh from his home studio in Wellington, New Zealand, where he has some rare time off before heading back on the road. “I could have eight mics and a little mixer, and then I’d feel more comfortable because I’d have more control when I got back home to my studio.” Parsons is one of the premier field recordists in the world, having made such compelling and exquisite forays into the world of traditional music as the recent seven-CD series *The Music of Armenia*, the three-CD *Music of Cambodia*, two volumes of *The Music of Vietnam*, three CDs of *Ritual Music of Tibetan Buddhism*, and much more, mainly at the behest of Eckart Rahn’s Celestial Harmonies label. Working in the field, Parsons has to travel light—his primary tools are a single DAT recorder and a stereo microphone.

“Last year in West Java,” Parsons says, “we did some Sundanese music that really needed multi-tracking, and believe it or not, we managed to find two DA-88s in somebody’s garage studio there, so we used that, and it absolutely suited that kind of music, which was very demanding. But in about 80 percent of the projects we work on, if you try to take the musicians out of their local environment and into a recording studio, something really vanishes; it’s not the same. For instance, in the Sinai Peninsula, at midnight, under a full moon, in a dried-up river bed in the desert, we recorded the songs of the Bedouin people, and it was absolutely magical. There’s no way you could have gotten what we got in a recording studio. Technically, it might be a



Parsons in the Dip Tse Chok Ling monastery in Dharamsala, India

better recording, but it wouldn’t have the feeling of these people literally coming out of the darkness to sing by the fire, passing their instruments around. It was wonderful.”

Long before devoting most of his time to recording the rare in-

learning the sitar, culminating with a year in India “where I had to unlearn a lot of the things I’d learned on my own,” he says. “In India, I was studying 12 hours a day, seven days a week, and that really opened up my ears. Before that, I was kind of tone deaf; I couldn’t tell if something was sharp or flat. But I came away from it with perfect relative pitch, from having to learn how to tune those instruments properly and really *listening*. It was great ear development.”

Parsons’ next great discovery was synthesizers. He built his own synth studio in Wellington and began composing his own albums of Indian-influenced instrumental music. These records took on a new character after Parsons bought his first DAT recorder: “I was going to India, and I’d walk around with the DAT recorder picking up all sorts of sounds I wanted to use in my compositions. Then, my wife [Kay] and I were spending about three months at this Tibetan monastery [Dip Tse Chok Ling, in Dharamsala, India], and the monks said, ‘Treat this monastery as your own and record and photograph whatever you like.’ So I thought,



David Parsons

digenous folk music of the world. Parsons was busy playing music that was quite far off the beaten track. In his younger days, he played drums in various jazz-rock bands, “but I found that very frustrating,” he recalls. Hearing a record by Indian master musician Ravi Shankar turned Parsons’ head around, and he devoted much of his time for the next seven years to

BY BLAIR JACKSON

—CONTINUED ON PAGE 122

THE LIVERPOOL INSTITUTE FOR PERFORMING ARTS

The Liverpool Institute for Performing Arts—“Sounds a bit lofty, perhaps, but the idea is that it won’t be,” says lead patron Paul McCartney of the new college he has helped finance; it is built into his old high school. “As I see it, LIPA is going to help those with talent, in various fields, realize and develop it.”

Those fields include acting, dance and music, as well as a potentially significant (and already exclusive—enrollment is limited to 60 students) audio engineering program, which went from zero to 60 when its five brand-new rooms came online June 7. The two-year program offers a diploma in sound technology, validated by John Moore’s University of Liverpool.

Despite being built into an old school—which had fallen into grave disrepair—the new, spacious interior of LIPA’s campus resembles Oz more than an aging Liverpool landmark. A high-tech, magnetic card-swiping security system on almost all doors makes you feel as though you’re touring FBI headquarters. Many millions of dollars have gone into this project, thanks to help from title sponsor Grundig AG and a long list of patrons, including Mark Knopfler, Carly Simon, Dudley Moore and Glyn Johns.

Getting the studios up and running on schedule was a daunting task for the head of sound technology, Jon Thornton, especially given the inaugural festivities that had been scheduled for the new facility: a Royal Open-

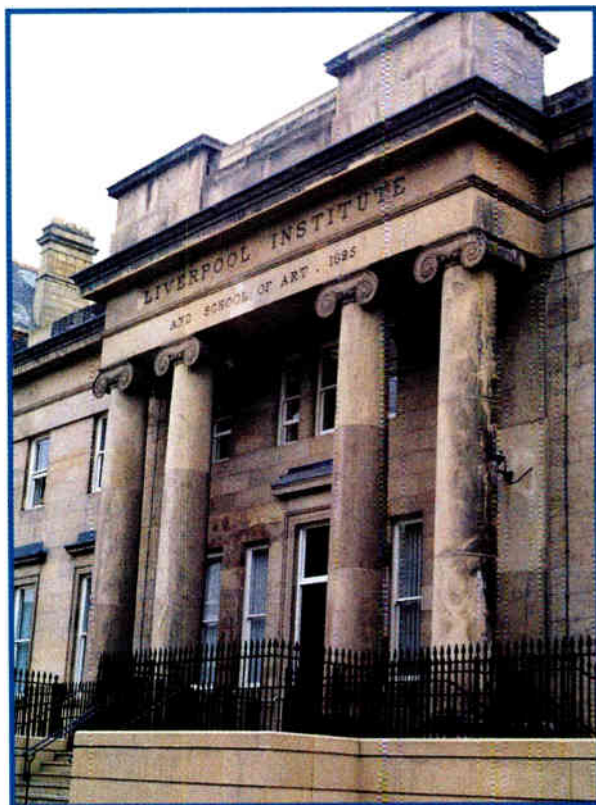


Jon Thornton with audio students at the Amek desk

ing with Her Majesty the Queen of England and a master class by patron George Martin on the new studio’s first day of operation.

“It’s a hell of a deadline,” admits Thornton. “It’s involved working 24 hours a day by the contractors responsible; at one stage, there were something like 23 men in there.”

“From time to time, relationships got



a little bit warm between the contractors,” Chris Simpson of the installation crew confesses with a smile, finally able to relax in the college’s upscale, vegetarian-friendly cafeteria after the queen’s departure. “One of the best routines was when we were crouched behind the mixer wiring up the main inputs and outputs on a couple of milk crates, and there was an air-conditioning guy that had balanced a scaffold board across our heads, and there was another guy poking a cable underneath us, so we had somebody working above us and somebody working below us. That was probably one of the most ridiculous moments.”

OPENING DOORS & MAGIC CARPETS

Despite the obvious pressures, a Royal Opening has its advantages when trying to motivate subcontractors, according to Andy Baker of Marquee Audio, consultant and project manager for the audio and communication facilities throughout the building.

“It’s amazing the influence it has on people when you phone them up,” Baker says, “and they say, ‘We can’t get the doors to you for another two weeks,’ and you say, ‘You’re going to get the doors to us next week because the queen’s going to be here,’ and it’s gone right through.”

BY STEPHEN WEBBER

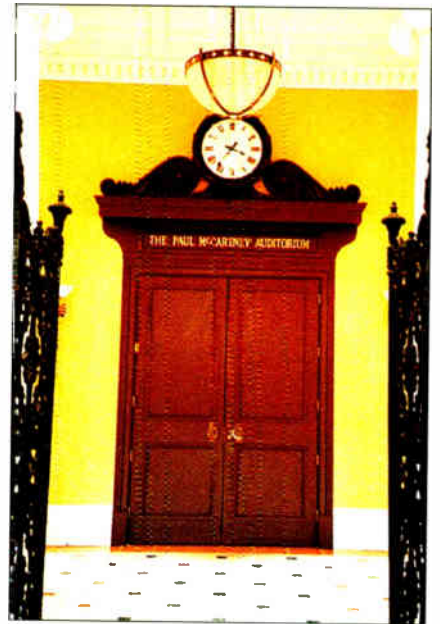
"We had a cleaner come do the carpet," Baker continues, "and the following morning it had white blotches on it. The foreman on-site called and spoke to the [cleaner's] receptionist and said, 'The queen will be here in 24 hours, and she's going to walk on *your* carpets!' and the person at the other end was going [in Monty Python falsetto], 'What, you mean the *queen*?' and the cleaners were suddenly back!"

TRACK TALK

And how did Her Majesty go about inspecting a new recording studio? "She

seemed interested, she asked questions," reports Thornton. "While we were showing her a modern 48-track studio, Paul McCartney was saying, 'This is wonderful, but we started with 4 tracks, and what the place is about is knowing that having 48 tracks is *not* where it starts, that it's just something you meet on the way.'—having that little interface together was rather nice."

In his small but bright glassed-in office, LIPA chief executive Mark Featherstone-Witty echoes McCartney's comments on having 48 tracks in an educational institution: "Well, do you really need them all? I guess you should be acquainted with them, but there is a



sense in which you could say ingenuity is part of the creative process. We're delighted to have the gear, thank you very much Harman. That's wonderful, and we should have it. It's just a sort of more philosophical question.

"Our relationship with Harman has been very positive," he continues. "They've been kind enough to give us a 40 percent discount, which is a lot of money for us. And it's real money. When you're trying to raise money for a project, you quickly discover it's easier to raise money through goods being given in kind than it is real money."

LIPA council chairman Tony Field, who has years of experience as a successful producer for the London theater, answers the question of how much capital investment went into building the studios by saying, "Had we known it was going to cost what it did, we would never have done it! And all we can say is thank God we didn't know, because we've done it now, and we've got to find the money to pay for it, or at least the last bit of money to pay for it.

"I mean, it's almost like putting a show on," he continues. "Once you've reached a point of no return, you cancel the whole project at your peril. So you've got to go on, and you've got to decide whether this is going to be 100 percent perfect or not, and most of us want things to be pretty perfect, and the studios here are really very fine. We're very proud of them."

STUDIO TOUR

There is much to be proud of. Thornton takes us through the five rooms: "The two entry-level studios are based around very simple, traditional analog



**Width, depth and height
with only two speakers**

- Sensaura

 Sensaura™

Sensaura will feature on the DSP
North America stand at AES '96

For more information on Sensaura, please
contact Central Research Laboratories on
+44 181 848 9779 or
email ktemple@crl.co.uk

Full 3D playback over two speakers

360° 3D height depth and width
positioning

More tolerant to listener position than
stereo

All digital, 20/24 resolution

8/16/24 channel options

Horizontal angle, vertical angle and
delay control for each channel

Dynamic 3D movement

Sensaura™ and the double crescent
logo are trade marks of
Central Research Laboratories Limited.

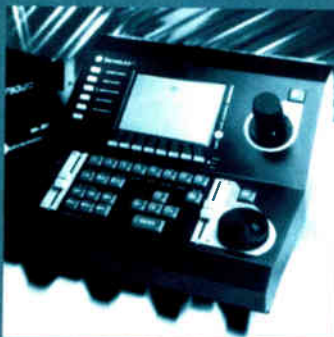
CENTRAL RESEARCH
LABORATORIES

Associated with EMI Group plc

(Small Print)
PATENT SPECIFICATION
Application No. 11,133, No. 14,012/31 394,325
English Specification 147,141, 147,142
English Specification Accepted 7 June 14, 1933.
PROVISIONAL SPECIFICATION
Improvements in and relating to Sound-recording, Sound-reproducing and Sound-reproducing Systems.

In 1933, scientist Alan Dower Blumlein was granted a patent for his work on binaural recording - later known as stereophonic. The principles of his pioneering work are still evident in today's stereo systems.

In 1993, our scientists again applied for patents covering their latest development in stereo technology. Continuing a proud tradition in audio innovation Central Research Laboratories now presents the Sensaura SPU-800 Digital 3D Workstation - mixing full 3D sound over a conventional two speaker stereo system.



THE NEW STANDARD IN DIGITAL RECORDING MEDIA



If you work with digital audio, video or multimedia, you already know the importance of reliable, high quality recording media. At HHB, we've drawn on 20 years of professional recording



experience to specify the highest possible levels

of performance and long term security across the entire HHB



Advanced Media Products range. It's therefore no surprise that HHB DAT Tape is

independently proven to be the best that money can buy*. Or that the archival security of our new improved CDR74

recordable CD is unsurpassed, thanks to an uprated Phthalocyanine Gold



recording layer and a revolutionary matt coated protection layer. Or

that our ADAT[®] tape is fully approved and recommended by the Alesis Corporation.



And as the random access formats of the future emerge, HHB is there already with a MiniDisc that

sets new standards of performance and a range of MO disks so reliable, that we're confident to

back them with a lifetime warranty.



Don't take chances with digital recording media. Make sure it's HHB.



HHB ADVANCED MEDIA PRODUCTS • THE FUTURE IS SECURE

*Studio Sound 'DAT On Trial'

SEE US AT AES BOOTH # 1046

HHB Communications Inc · 43 Deerfield Road, Portland, Maine 04101 1805, USA
Tel: 207 773 2424 · Fax: 207 773 2422 · E-Mail: 75671.3316@compuserve.com

HHB Communications Ltd · 73-75 Scrubs Lane, London NW10 5QU, UK
Tel: 0181 962 5000 · Fax: 0181 962 5050 · E-Mail: sales@hnb.co.uk

Studer Canada Ltd · 1947 Leslie Street, Toronto, Ontario M3B 2M3, Canada · Tel: 416 510 1347 · Fax: 416 510 1294

Visit HHB on line at: <http://www.hhb.co.uk>

ADAT[®] is a registered trademark of Alesis Corporation



21 GREAT MUSIC TRACKS. FREE!!!!

SOUND IDEAS presents the Production Music Library for producers who need more variety, more categories, more world class composers. In a nutshell...more usable tracks.

You want more proof?

Call today and we'll send you 21 great tracks **free.**
USA 1-800-387-3030 CANADA 1-800-665-3000

TEL 905-886-5000 FAX 905-886-6800
INTERNET mdemo@sound-ideas.com

Sound Ideas

105 West Beaver Creek Road, Suite 4, Richmond Hill, Ontario, Canada L4B 1C6



INTERNATIONAL UPDATE

split consoles: one Soundcraft Series 6000 and one from Malcolm Toft Associates, Series 900. The reasoning is that, in my experience, it's easier to teach the concepts of things like signal routing using a split board than it is to use an in-line board, though I personally find an in-line easier operationally.

"Across the corridor the remaining three studios start to run into specialized

areas. For example, we have an audio post room, which is a 24-track room that has a Soundcraft DC2020 surround console tied to an Akai DD1500 hard disk editor, which is gaining a lot of credibility and acceptance in this country with audio post engineers for TV. That room has the necessary synchronization gear, screens, offline capability and a surround matrix on the desk to support ADR, Foley, sound to picture, surround mixing and premixing.

MASTER CLASS WITH SIR GEORGE

Producer George Martin has a new title: "Sir." On the Queen's Official Birthday in June, the "fifth Beatle" was knighted—just as the Fab Four became "Members of the British Empire" 30 years earlier (John Lennon would later return his MBE to Buckingham Palace in protest of the British government's support of the war in Vietnam). I sat down at the round table with Sir George at the royal opening of LIPA.



How have things changed from when you were starting out in the recording industry to what students graduating from a recording program face today?

Well, I'm a dinosaur. I started in the recording business in 1950, and in those days there was no such thing as stereo; there was no such thing as multitrack. You just went into a studio, and it was like a broadcast—you did a performance, and the aim was to capture [it] as faithfully as possible.

Nowadays, you make it up as you go along. And you have a tremendous amount of aids that we didn't have in '50. You have all the computer technology and digital techniques, and things are much easier. It's much easier to make a good sound now than it used to be. But that in itself is a trap, too, because people think that if you make a great sound and make a great production, you're okay, but of course that's not true.

You've got to have some good music and some good lyrics and a good idea in the beginning before

you even go into the studio, and a lot of people forget that.

When you come to a college like Berklee or LIPA to do a master class, what are the most important things you try to impart to the students?

I suppose the most essential thing is human relationships—establishing rapport between the producer and the artist. The producer must be aware of what the artist is capable of doing and must be able to tap that talent and bring out the very best in it. And he does it by a combination of talents. He does it certainly by knowing what is necessary. He should be skilled in music and know what tools he's using and how to use them.

But he's also got to be a bit of a wily one, he's got to be a bit of a diplomat, he's got to kind of kid the person along, because quite often an artist is nervous or uptight or not relaxed. You've got to be a bit of a psychologist, as well.

What was your involvement in terms of the actual studios here at LIPA? Did you make suggestions?

No, I gave them a rough idea of what I thought it should be, but

—CONTINUED ON PAGE 122

Employee of the Month.

The fastest
in-house CD-R copiers

Add one of these machines to your staff and you will find that they work faster, harder, and longer.

The CD-2510 delivers both simple operation and unattended duplication of up to 25 CD-Rs. The CD-4400 is the accepted industry standard for manual duplication. There is no more reliable, effective or efficient way to make CD-R copies... and for less than minimum wage!

CD-2510 Standalone CD-R Autoloader

This machine is what you have been looking for to simplify your CD-R production by delivering both simple operation and unattended duplication of up to 25 CD-Rs. The system combines the quality of a production proven autoloader, the performance of the industry standard Yamaha 4x CD writer, and the multiformat intelligence of MediaFORM's networkable controller. The result is the most cost effective CD-R duplicator available, with the speed and performance your production requires. Simply stack the input hopper and walk away. Separate accept and reject bins make for easy identification of successfully recorded media.



CD-4400 Manual CD-Recordable Duplicator

The MediaFORM CD-4400 (right) combines a user friendly interface with multiple format capability. With support for multiple units and autoloaders, the CD-4400 offers the most complete desktop CD-R publishing system available. CD-Rs can be duplicated in nearly any format, from standards like ISO 9660, HFS and CD-Audio, to complex game formats like Sony PlayStation and Sega Saturn. For audio production the CD-4400 is available with an internal DAT drive, allowing for direct DAT to CD-R duplication. Up to ten CD-4400s can be networked together. Given a full master, 120 CD-Rs can be burned in one hour.

MediaFORM™

SEE US AT AES BOOTH # 136

400 Eagleview Blvd., Suite 104, Exton, PA 19341 • 610-458-9200 • Fax 610-458-9554 • Toll Free in the USA 800-220-1215
On the Internet: email: info@mediaform.com • On the web: <http://www.mediaform.com>

USE READER SERVICE CARD FOR MORE INFO

SCHOEPS

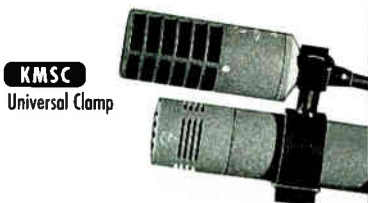
TAKE A GOOD
LOOK AT OUR
MICROPHONES

NEW!

Precise In Every Detail!



CCM₉
Classic Compact Microphone



KM5C
Universal Clamp



MK4V₉
The Versatile Cardioid



MK2H₉
The New Omni



CMB1
Battery Microphone Amplifier



SCHOEPS

Schalltechnik Dr.-Ing. Schoeps GmbH

P.O.B. 41 0970 · D-76209 Karlsruhe
Phone: 07 21/9 43 20-0 · Fax: 07 21/49 57 50

INTERNATIONAL UPDATE

"At the other end, we have a small room with two Yamaha 02Rs with a Mac computer running the two desks as if they were one, [with] some onscreen software which has a nice big graphical interface. We've kept as much as we can in that room in the digital domain, and we have 24 tracks of DA-88s and 16 tracks of Pro Tools available. Also [there's] a lot of permanently installed MIDI sound generators, and some fairly esoteric stuff: Waldorf Microwaves, Oberheim OBXs, as well as standard samplers and the current flock of MIDI expanders.

"The master control room is a 48-track room," continues Thornton, "where we've run 24 tracks of DA-88s with an Otari MTR90 2-inch 24-track analog, running Motion Worker for synchronization. So there's 48 tracks—47 and SMPTE. The console is new, an Amek Galileo, which is a 56-channel in-line design. It has VCA automation currently, although we'll add moving fader automation when it's released for the console, which will be in about a month's time.

"Teaching automation is an awful lot easier with moving faders. And the abil-

ity to disengage the motors introduces the idea of VCA consoles, which they will experience out there."

Andy Baker of Marquee Audio was responsible for specifying equipment throughout the facility, including the monitor systems. "The main system in the master control room," he says, "is a Boxer IV system. It actually was a second-hand system that was recovered from another client who was moving on to the new Boxer T Series. We've always liked the Boxer IV System. It's got a good reputation—BBC has them. The Hit Factory has some. We think it's one of the best top-end reference monitor systems in the world.

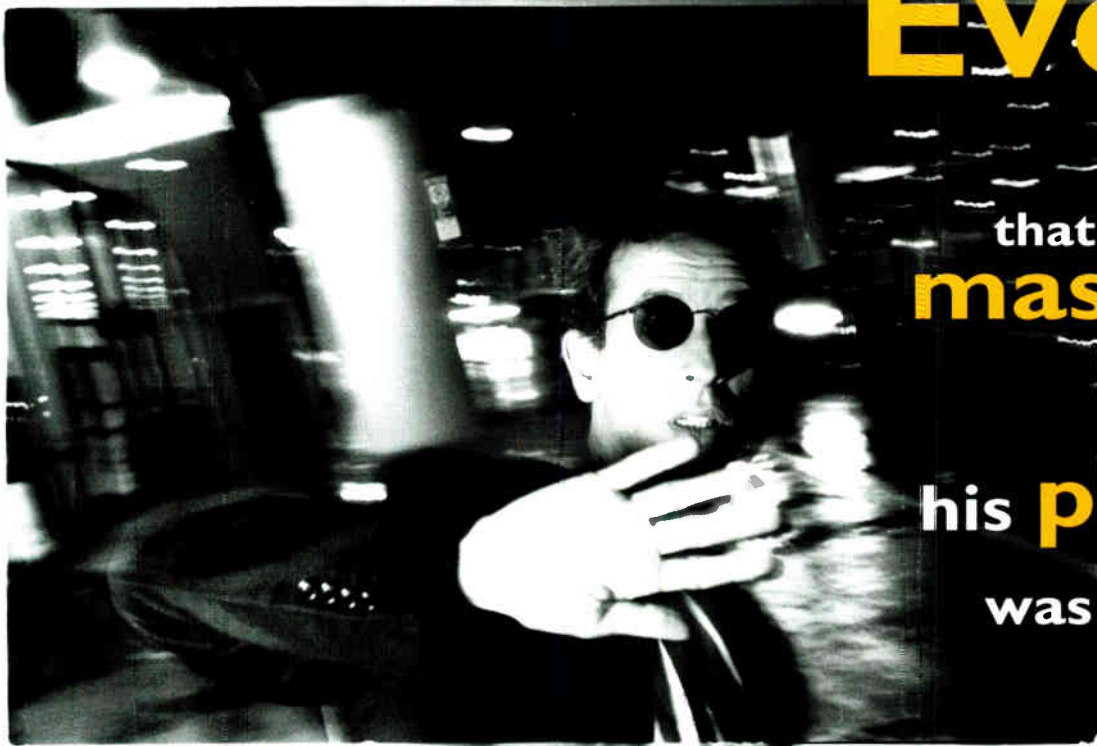
"When we got involved," Baker continues, "the syllabus was just being developed, and it was quite an exciting period as more and more members of staff came along, and they all had their input on exactly how the syllabus would be formed. It was obvious that even with five studios and all the other facilities LIPA has, the actual time pressure was going to be crucial. So we tried to keep as much constant through the studios as possible. They've all got very similar outboard, and a common recording format in DA-88 so that students can move from room to room easily.

PIERCE STUDIOS

The Pierce Room—owned by producer/artist Richard Pierce—went online this spring. Situated behind London's Hammersmith Apollo Theater, the facility is equipped with a Neve VR72 console with Flying Faders, two Studer 827 24-track analog tape machines, 32- and 48-track digital machines and the first dedicat-

ed surround monitoring system based on Dynaudio Acoustics' M4 monitors. The Pierce Room is housed in an art deco building once used for storing props for the Hammersmith Apollo and is linked via tielines to the theater, enabling bands to record performances without a mobile or temporary recording setup. ■





Ever
 since
 that
masterful
 edit,
 his **privacy**
 was all but
 forgotten.

Sound designer Leslie Shatz narrowly escapes camera barrage.

Producers, studios and artists are getting more attention than ever these days. Just listen to the soundtracks of Oscar® nominee *Apollo 13* and *Dead Man Walking* and you'll hear incredible multitrack editing and mixing made possible only by Sonic.



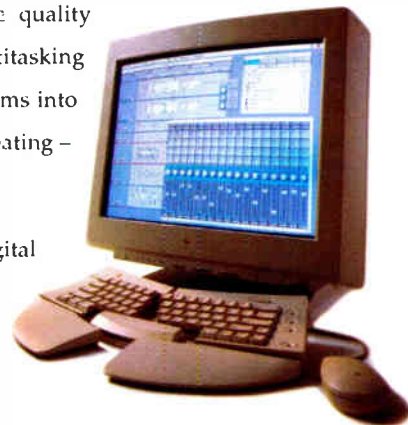
- 24 bit digital audio architecture
- 96 KHz sampling capable
- High-density CD/DVD support
- 96 I/O channel maximum
- Sub-nanosecond jitter
- Real-time digital media networking

Tune in to this year's Grammy®-winning recordings to hear the superb sound quality delivered by Sonic Studio, the DAW that gives you the power to do your most exciting and creative work.

Sonic Studio delivers the performance and the quality you've been waiting for. Background loading, multitasking and high-speed networking turn your Sonic systems into a seamless media workgroup. Spend your time creating – not waiting.

Get your hands on the industry's favorite digital workhorse. And while you may not have to worry too much about groupies, you can expect to get chased around. By new business.

SEE US AT AES BOOTH #447



101 Rowland Way, Novato CA 94945

Sonic Studio and the Sonic Solutions logo are trademarks of Sonic Solutions. Other trademarks and registered trademarks are the properties of their respective owners. © 1996 Sonic Solutions
Apollo 13 sound edited at Hastings sound and Wonder Dog Music. *Dead Man Walking* sound edited at Hastings.



Call 1-888-SONIC-4U today.
 And visit us at www.sonic.com.

USE READER SERVICE CARD FOR MORE INFO

World Radio History

"We've got audio tielines between all the rooms," Baker says, "as well as different control tielines for timecode and all that sort of thing. And that's not just within the studio complex—it goes into all the performing spaces in the building, so they can record live events as they happen." ■

Stephen Webber is assistant chairman of music production and engineering at the Berklee College of Music. He spent this summer as a visiting lecturer at Bretton Hall College of the University of Leeds.

—FROM PAGE 114, DAVID PARSONS

"Why not try to record an album while I'm here?" which I did. That proved to be successful, and we've recently done our third album with the monks there.

"After that," he continues, "Celestial Harmonies decided I should do this on a more regular basis for them. I don't have any formal training as far as being a recording engineer. The whole thing comes from being a musician and being interested in sound and being intuitive about recording techniques."

Parsons' field setup "has to be as simple as possible, because we go to all these remote places. Even a microphone stand is a luxury sometimes. So I

just take a Sony TCD-10 DAT recorder, which is their best without timecode, and the microphone is an AKG ENG stereo mic, which has that really silky AKG sound that I love. Obviously, there are some better microphones around, but this one has worked very well for me. Then, when I come back here to my studio, I have 16 tracks of Pro Tools and Sound Designer for editing and to fix and enhance things where I can."

Each recording situation in the field presents a different set of challenges for Parsons. First, before the recording even takes place, Kay Parsons handles most of the logistical matters: "She's very good at contacting people and finding out who does what; she does all the phone ringing and footpath pounding, as well as takes photographs," Parsons says. Then, in each country, "We try to find somebody who knows something about the music beforehand. We get a local person, and if we're lucky, we find an ethnomusicologist, and we get them to help us, act as an interpreter. We take notes and later give them to John Schaefer," who writes the lively and detailed liner notes for each CD release.

In many cases, once the "session" is set, Parsons' main task is to find the best placement for his stereo mic. Ideally, he'll have half an hour or more with

—FROM PAGE 118, MASTER CLASS

these days recording studios are fairly standard, and they've done a very good job here.

I'm passionately interested in acoustics; and the actual hardware that you put into a studio, that's all incidental. But the qualities of a room are important, and there's no point in having a bad room with great equipment.

A lot of kids these days have no knowledge of what acoustics are like because they're dealing with discrete sounds. They don't know how to handle a band or a string quartet in a room, and it's the interaction of instruments within an acoustic environment which is so fascinating, I think, and makes for great sounds. I think it's a great institution, LIPA, and I think it's going to go on and do great things. And we should see a lot of marvelous talent coming out of it, which is, for me, the best reward of all.

—Stephen Webber

With ImageMaker® CD-R

you can start
small...



and reproduce
more later.



That's because MicroTech knows that your duplication needs today won't necessarily be the same tomorrow. So ImageMaker CD-R gives you complete flexibility. Start with just two 4x drives and expand as you need them. No matter how many drives you choose, ImageMaker CD-R provides high performance duplication with 100% accuracy. And it supports a wide range of CD formats from data and games to music and video. Plus, the hardware and software are designed and built specifically for production. When you combine all that with our open architecture, networkability, graphical user interface, and quality service, you'll have the very best reproduction system for your high volume manufacturing needs. Visit our website at www.microtech.com or call us in the U.S.A at **1-800-223-3693**



2 Davis Drive, Belmont, California 94002-3002
Phone 415-596-1900 • Fax 415-596-1915

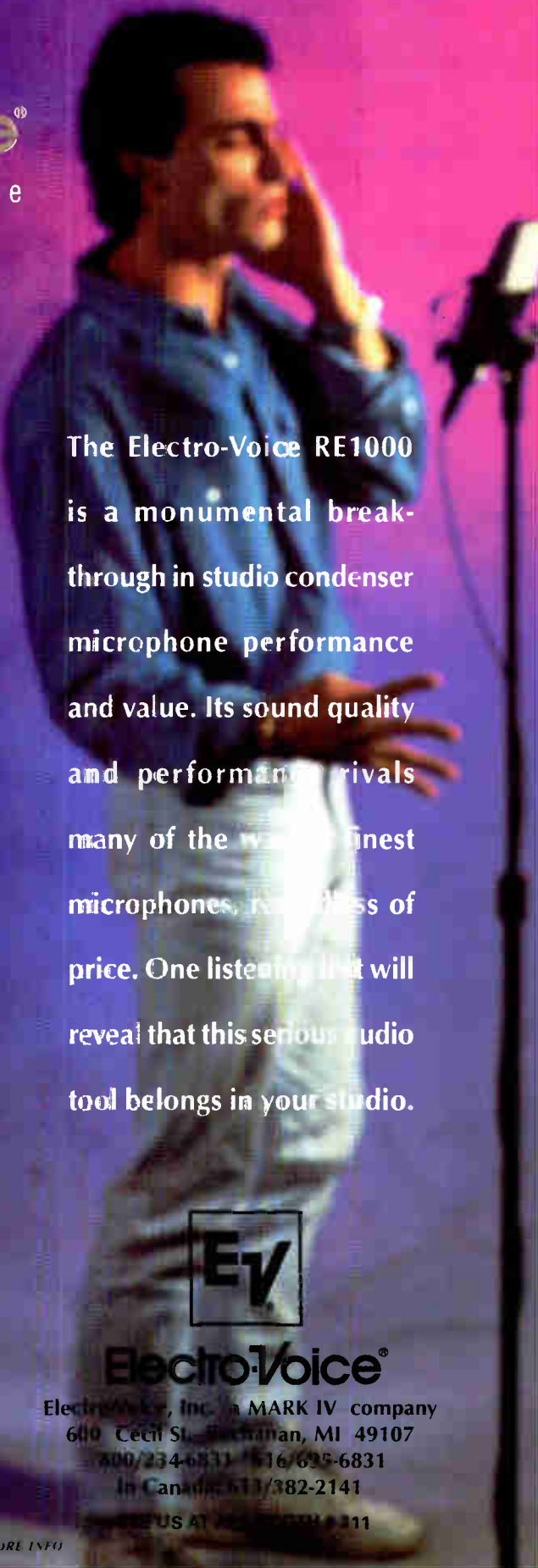
Contact: Richard D. Wilson, Vice President of Sales

USE READER SERVICE CARD FOR MORE INFO

RE1000

Electro-Voice®

True Condenser Studio Microphone



The Electro-Voice RE1000 is a monumental breakthrough in studio condenser microphone performance and value. Its sound quality and performance rivals many of the world's finest microphones, regardless of price. One listening test will reveal that this serious studio tool belongs in your studio.



Electro-Voice®

Electro-Voice, Inc. a MARK IV company

610 Cecil St., Buchanan, MI 49107

800/234-6831 / 516/625-6831

In Canada: 613/382-2141

SEE US AT 401/337-6311

INTERNATIONAL UPDATE

the musicians and/or singers before he formally rolls tape. "I have one mic, so what do I do? Well, generally, in a group setting, the musicians balance themselves. Then I get the principal musicians up and they all listen to what I've recorded, and I ask them how they think it should be balanced, and so sometimes we'll shift musicians around and try a different seating arrangement until we get it the way they think it should sound."

In the case of the incredible sacred choral music of Armenia (on *The Music of Armenia, Vol. One*), the choir had never been recorded before. "What amazed me," Parsons says, "is they didn't really have any appreciation of their own music. For instance, the choir sometimes toured outside of Armenia, but their repertoire consisted of Wagner and other composers. I said, 'Why don't you sing Armenian music?' And they said, 'No one wants to hear that, do they?' I thought they were joking, but they weren't. Armenian music is some of the most beautiful music in the world!"

Parsons captured the haunting

strains of the choir in a lovely, centuries-old stone church, and he recorded some solo vocal music in a nearby cave. "The cave had so much reverb in it, it was like putting headphones on and speaking through a delay machine. As soon as you walked into the room, it was like you got a speech impediment; you couldn't speak properly because it was always coming back in your face all the time. We considered putting the choir in there, but I think it would have been too jumbled and confused, so we just put the soloist in there."

Parsons says that far from being a dispassionate observer when he records, he allows himself to be swept away by the music; that's one advantage to having a simple recording setup. "I've had tears running down my face recording Armenian music, because of the sheer beauty and glory of it," he notes. "I'm a person who's not so much interested in the technical side of anything. It's more how the heart responds that I'm interested in. Sometimes I feel like I'm running around with a butterfly net and coaxing the notes into a microphone. I feel more like that than an actual technical engineer. With the Whirling Dervishes [of Turkey], I was

absolutely mesmerized—it's such a glorious sight—and it was so beautifully relaxing and serene. There was no way not to be transported by it."

Usually Parsons likes to monitor the performances he records with headphones, but he says that "sometimes the music is far louder than what you can accurately monitor on headphones, and it becomes sort of hopeless. For instance, in Bali, where you might get up to 50 musicians to record with one microphone, it gets to be a logistical nightmare, with all the low-lows and piercing highs [in a gamelan orchestral]." Although he says he has no problem stopping a performance for technical or even performance reasons, "Take one is usually the best when you're talking about folkloric music because it has a kind of energy that is fresh and spontaneous. If you start saying, 'Well, I don't like the third chorus,' or, 'You're not projecting enough,' or, 'You're slightly off-key,' usually take two is even worse," he says with a chuckle.

What's the most difficult music to record? Without hesitation he replies, "The worst kind of music in the world to record in a field situation is Arab music, because the lead singer usually



Tower Mastering
celebrating
40
years of
success in
audio evolution.
All that's changed
is the name.

TOWER MASTERING
(213) 871-5003 fax (213) 871-5008 The Capitol Tower 1750 N. Vine St., Hollywood, CA 90028

USE READER SERVICE CARD FOR MORE INFO

The advertisement features a dark blue background with a glowing purple and orange tower graphic on the right. Several inset photographs show a person working in a recording studio, a control room with various equipment, and a close-up of a microphone. The text is in a bold, yellow, sans-serif font.

TRUE MULTITRACK DIGITAL RECORDING

Fostex

Now you can record 8 tracks simultaneously at CD-quality on a removable hard drive with no compression and no compromise!



* Using optional 1.7GB Hard Disk. 850Mb supplied as standard. All trademarks acknowledged.

SLAVE D-80s for 16 & 24 TRACK RECORDING

The D-80 can be slave or master to other D-80s. DMT 8s and the outside world via its standard built in MTC and is sample accurate with Word Clock (optical S/P DIF).

Finally, you can have an expandable IDE-based digital removable hard disk system which offers up to 40 minutes* of true multitrack recording, non-destructive 'cut, copy, move & paste' editing, instant locate & search, five 'virtual reels', digital and analog inputs/outputs along with a removable front panel which acts as a full function remote control—all in a package which is a snap to use and incredibly affordable. So much so, you might want to buy two or three for 16- or 24-track recording capability. Visit your Fostex Dealer today!

SEE US AT AES BOOTH # 1041

D-80 Digital Multitrack

For further information contact Fostex Corp. of America · 15431 Blackburn Ave. · Norwalk, CA 90650 · Voice: (310) 921-1112 Fax: (310) 802-1964 <http://www.fostex.com>

USE READER SERVICE CARD FOR MORE INFO

SOUNDWARE

4 CHANNEL FORMATS

Supports 4 channel surround formats for Broadcast such as Dolby Stereo.

5.1 FORMATS

Supports 5.1 channel surround formats such as Dolby Digital, DTS and DVD.

7.1 FORMATS

Supports 7.1 channel surround formats such as SDDS and the MPEG proposition.



AUTOMATED PANS

Automated surround pans may be applied to every channel of the console.

EFFECT CONTROL

Obtain realistic motion effects by also controlling TC effect processors.

PRO HARDWARE

Dedicated hardware with a user-friendly interface. No need for an external computer.

YAMAHA 02R DIGITAL SURROUND

The SP02 panner enables a wide variety of multi-channel surround panning to be performed on a Yamaha 02R. The movement of every single channel may be recorded into the 02R's automation system.

The surround panner should be seen as extension of the mixer centre panel. Level control is still done and automated on the motorised faders.

More than 70 SP02 units are in use today in Europe.

SOUNDWARE • VESTERPORT 8 • 8000 AARHUS • DENMARK

USE READER SERVICE CARD FOR MORE INFO

claps or plays a drum, and there's no way you can stop them from doing that. You listen to it later, and it sounds like claps with vocal accompaniment way in the distance. With Sound Designer, I've been known to work on the claps a little, sort of like limiting, to get rid of the sharp transients that are dominating the overall recording level. It works to a certain extent, but sometimes you just have to live with it."

Pity poor David Parsons then, because many of his recent forays have been to record Arab music for an upcoming 12-CD extravaganza for Celestial Harmonies called *The Music of Islam*. At the time of our interview, he'd already recorded the Royal Court Gamelan in Indonesia, Nubian musicians in Egypt, the Bedouins of the Sinai, Gnawa music of Morocco, the Whirling Dervishes of Turkey and he was awaiting word on whether he could go into Iran, Iraq and Pakistan. Sometimes the red tape involved can be daunting, not to mention incredibly time-consuming. "But usually I get a regular tourist visa and just go in and do my recordings," he says cheerfully.

And sometimes that's easier to pull off than others. "Usually I set up a recording situation," he says, "but there was one recording we've done in the last two years that was a totally pure, authentic ceremony, and it was a nightmare to record. This was in Marrakech, Morocco, and we recorded actual Sufi ceremonies of people going into trances and writhing on the floor and screaming, and so on. There was a woman walking around with a candle under her chin, and it wasn't burning her skin. I had to gaffer-tape the microphone to an orange tree, and in part of the ceremony they talk about how anything black is very bad—well, my microphone is black, so during that part of the ceremony, this lady rushed over and threw a white cloth over the microphone because people would attack it otherwise. I was sort of hiding up on a balcony worrying about my microphone, but meanwhile Kay was right in there shooting flash pictures of it all, and nobody seemed to mind. It was wild."

When he isn't traipsing about the globe preserving bits of the old world on magnetic tape, Parsons is in his studio either editing that tape, or helping make ends meet by writing music for commercials and documentary films on his arsenal of keyboards, which includes Roland JD990 modules, a Yamaha TD77

triple DAT

the out of this world system at the down to earth price:

\$ 1798.00!

a complete system: 4-channel audio board, digital studio software, DSP suite, sync Et cabling

pentium-pc digital audio workstation

call 1-800-899-1939

creamw@re
fidelity at work

and get information about real realtime power!

SEE US AT AES BOOTH # 1464

SALES: 1 (800) 899-1939 EAST: Tel. (416) 504-2264 Fax (416) 504-3624 WEST: Tel. (604) 527-9824 Fax (604) 527-9934

and a Korg WaveStation. He hasn't made one of his atmospheric solo albums (*Himalaya* and *Dorje Ling* are his best known) in several years, "because there's no time anymore. The [field] recording has taken over everything."

Not that he's complaining, mind you. David Parsons knows how lucky he is to be documenting for posterity the great but little-known musical traditions of strange and distant lands. After all, who among us has had an experience like this:

"In Bali, we had a recording booked with 15 musicians who had to drive three hours to come to the village temple for us to record them. And it was pouring with rain all day, and these guys were booked for the evening. I went to the man who was helping us out and said, 'Look, I don't think I can record in this kind of weather,' and he said, 'No problem, I just got the local village priest to do a ceremony to stop the rain when you record.' So I said, 'Fine, okay, carry on.' And believe it or not, when it came time to record, right where we were there was a ring of absolutely clear sky and all around it was black thunderous clouds and rain, and for the whole of the recording session, not one drop of water fell. So I recommend to any field recordists, always take a Balinese priest with you!" ■

BITS & PIECES

UK

Camden Town's Soul II Soul Studios purchased a Neve VR Legend for Studio 1. The Stone Roses also ordered a 48-VR Legend for their new studio, The Rosegarden, which is being set up in Bury...SSE Hire (Birmingham) has upped its inventory to include seven Midas XL3 consoles, two XL316 extenders and two XL4s. This summer, SSE provided gear to Tears for Fears, Tori Amos, Metallica and several UK festivals...Another leading UK sound company, Britannia Row (Fulham, West London), installed a new Audiomate moving fader system...Decca Recording Centre (London) has a new SADiE portable disk editor for use in location work. The system has already been used to edit the soundtrack of ICON Productions' *Anna Karenina*...Abbey Road Studios purchased three additional Digital Genius converters...Japanese record and music publishing company Avex opened a UK subsidiary in Soho.

—CONTINUED ON PAGE 349

Superior performance with predictable tape handling that lasts...Guaranteed. In standard and universal configuration.



The word is out... nothing but praise.

"Our skepticism was short lived...the difference was immediate and dramatic. T/REDS have been in our remote truck since June '95 without a hitch...Great product!"

Jon Frank, Engineering
WGBH/Public Broadcasting
Boston



T/REDS™

Ultimate Tape Drivers

for OTARI MTR-90/100 series analog
& OTARI DTR-900/Mitsubishi X-800 digital

From MDI PrecisionMotorWorks and selected distributors world wide.

241 White Pond Road, Hudson, Massachusetts 01749 U.S.A.

Phone: 508-562-4420 FAX: 508-568-1887 E-Mail: premowo@aol.com

USE READER SERVICE CARD FOR MORE INFO

From **Dale Pro Audio**

NEW Demo Room

Sound Advice.

Finally you can see, hear and compare the hottest equipment from the top pro audio manufacturers at the finest, most advanced demo room. Suspended on springs and totally sound isolated, our facility is like no other in New York. We've got working consoles, digital 8-tracks, hard-disc systems and 250 rack spaces of the best outboard gear. Get hands-on! Whether you need one microphone or a whole studio, you'll find our professional sales staff ready to assist you. For sound advice...call or visit Dale Pro Audio.

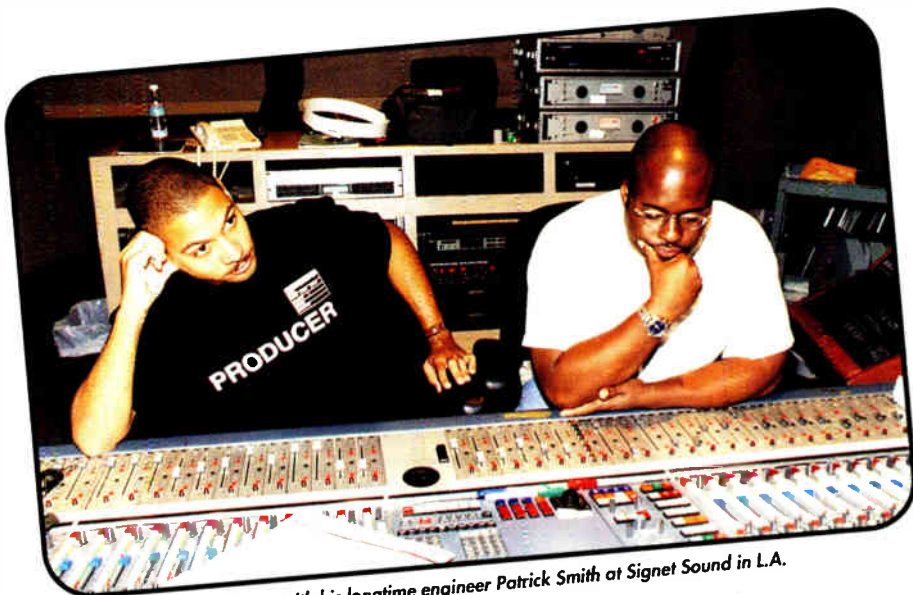
7 East 20th Street Suite 4R New York, NY 10003 Tel: (212) 475-1124 Fax: (212) 475-1169

DELFEAYO MARSALIS

JAZZ GREAT, WHATEVER IT TAKES

Delfeayo Marsalis, the fourth of six Marsalis children, has the kind of problem everybody wants. After producing a string of albums by his brother Branford, in addition to efforts by brother Wynton, Harry Connick Jr., Marcus Roberts, Courtney Pine, Terence Blanchard/Donald Harrison, as well as three sound tracks for Spike Lee films, he is finding himself too much in demand—not just as a producer, but as a jazz trombonist. He has released a solo album, *Pontius Pilate's Decision*, and he plays on Branford's *Bucksbot LeFonque*. He has also collected sterling reviews from Boston to Tokyo as trombonist with drummer Elvin Jones' heavy-touring quintet.

Among Marsalis' most recent productions are the duet album *Loved Ones*, featuring Branford



Delfeayo with his longtime engineer Patrick Smith at Signet Sound in L.A.

from classic sessions and study the setups and mic placement, "to get the vibration," he says. "I try to know as much as I can. I don't always try

to get one particular sound. I try to get a sound that is appropriate for the record. What I wanted to find out from the photos was what people did in different settings. What did Duke do when he was in L.A. and had a small room? What did he do at the 50th Street Studio where they did most of the older stuff? How did they record *Lady in Satin* and get that isolation on

time I hear a record, I'm trying to get a sense of how they recorded it."

Have you talked to Elvin Jones about how they recorded the Coltrane Quartet?

He described the setup to me, and it all made sense. Rudy Van Gelder did everything logically to minimize mic leakage. First, he started putting the piano mics in the sound holes. This became known as his trademark sound. Then he would set Trane and Elvin up opposite from each other, and McCoy [Tyner] and Jimmy [Garrison] were opposite from each other. Just like north, south, east, west. But rather than put Elvin and Trane in the center, he panned one left and one right, because the energy was happening between them, and put McCoy and Jimmy in the middle. Instead of putting the lead horn in the center like everybody else, Van Gelder panned it left, opposite the drums. Not hard left, but there's a way you can capture the full sound of the instrument and have it mostly to the left.

How have jazz recordings evolved sonically?

Well, a lot of people prefer the mono records because the group



Lean on me: with brother Branford

and their father, Ellis; the soundtrack for John Singleton's new film, *Rosewood*, with a score by Wynton; and his own second solo record, *Musashi*, on King Records. A few years ago, he went into the CBS vaults to find photos

Billie Holiday? How did they record *Birth of the Cool*? How were the musicians placed for *Kind of Blue* and *Someday My Prince Will Come*? How did they get that separation? Any

BY ROBIN TOLLESON

PHOTO: D. STEVENS/ZUMA PRESS

No Compromise CD Recording



Think about it. You spend hours tracking, editing, and mixdown on your projects. And, you've spent a small fortune on your mixing console, mikes, tape recorders, and all that outboard gear. So why settle for just any CD recorder when you can get the best—the new, very affordable Ricoh RS-1420C?

A third generation CD-R recorder and player, the Ricoh RS-1420C is the true choice for music professionals. The RS-1420C can write a CD at double speed (2X) or single speed (1X). It sports a generous 2MB buffer to ensure reliable recording across a wide range of systems.

Making a one-off Compact Disc is easy when the RS-1420C is mated with a Digidesign® Inc. system* such as Pro Tools®, Sound Tools®, or Audiomedea™ along with Digidesign's MasterList CD™ software. Whether your application is creating a master for replication, or just burning

a few demo discs to pass around, the Ricoh RS-1420C is an ideal addition to your studio.

The RS-1420C can also do double duty as a CD-ROM recorder/reader. It can read CD-ROMs at quad speed (4X) and record them at 2X/1X. Ideal for backing up sound files when a project is done, the RS-1420C frees up your hard disk for the next job. What's more, the RS-1420C can be used to digitally bounce tracks from a music CD to your hard disc in several different file formats.

The RS-1420C, an external model of the RO-1420C, is compatible with both Intel- and Macintosh- based systems. It is very easy to use and affordably priced. Internal models are also available at lower prices.



Photo shows the internal version, the RO-1420C.

Want to know more? Call us or one of our distributors. The phone numbers are listed below.

RICOH
1-800-955-FILE

CONSAN
STORAGE SOLUTIONS
1-800-229-DISK

SEE US AT AES BOOTH # 1159 & 1315
OPTICAL LASER
STORAGE SYSTEMS AND SUPPLIES
1-800-776-9215

USE READER SERVICE CARD FOR MORE INFO

*Please contact Digidesign at 1-800-333-2137 for details of compatible systems. Pro Tools, Sound Tools, Audiomedea, and MasterList CD are trademarks of Digidesign, Inc. World Radio History is a trademark of AVID Technology, Inc.

Yes! It works with
MasterList CD,
version 1.3.

really had to play together, into a few mics. When stereo came, there was heavy experimentation at first. Phineas Newborn's first recording on Atlantic in 1956 has a stereo piano. Atlantic would use room sound and no reverb. Contemporary [Records] recordings would have the rhythm section on one side and the horns on the other, like Sonny Rollins' *And the Contemporary Leaders*. CBS and RCA were the most commercial and used a lot of reverb. Instru-

wanted, man, I'd have a fit—because I'm really serious about getting the ultimate sound. We had an argument about Dolby at one Spike Lee session, when I just cussed everybody out. It was classic. If I was called into question by engineers, it would feel just like a personal attack on me. But now I don't take it personally. If someone is paying me, I want to give them the good vibe.

That quality wasn't as prevalent in me in the early years, because I was too busy fighting to get things to sound a certain way. If you believe in something,

Wind & Fire song once, and we never could get the sound to match right on my mixer. So I was always searching from that perspective. I began hanging out at local studios and was a nuisance. Then I went to Berklee, where I was even more of a nuisance. I owe Don Puluse and the staff there a lot for giving me a certain type of freedom.

Through Branford and Wynton, I eventually met great classical producers Thomas Mowrey and Steve Epstein. They gave me a lot of information. I would call whoever I thought could tell me what I needed to know: Tim

Geelan, Bruce Swedien, Teo Macero, Rudy Van Gelder.

Then in 1982, I was reading a book called *The 1,001 Greatest Jazz Records*, and there's a picture in it of *Kind of Blue*. I saw that it was recorded at a little church. I called CBS and got these Don Hunstein pictures. Wynton was always asking if we should add more midrange to the trumpet, or add EQ. I said, "You use these small studio rooms. Man, you've got to get to a big room." Because there's something about it, like the difference between a living room and a bathroom. Bathrooms generally sound live with all that porcelain. [Wynton] was about to record *Hothouse Flowers*. I asked where he recorded his classical records, and he said, "Man, we do it in a big hall, a big church." There it is. That's where you do your jazz records.

Then Branford did *Scenes in the City*. They rediscovered RCA Studio A, and that was the beginning of good sound in the 1980s, in my opinion. *Scenes in the City* was the first jazz ensemble record with the big, open sound—Branford comes in with that first note, I'm still trying to get a sound like that. Oh Lord, it sounds like he's in the room with you. They used the bass direct back then.

You've referred to it often as "the dreaded bass direct."

That was actually in response to a letter to the editor in *Downbeat*. *Renaissance* was the first record we used that term on. Branford and I were talking about creating a microphone that you could attach to the bass to capture the true wood sounds of the bass. Because you hear

PHOTO: D. ST. VEINIS/JAMA PRESS



At work in Roppongi Studios in Tokyo

ments were panned hard left or right or in the middle. They used a lot of limiting/compression so that sessions could be recorded without spending too much time on the sound. Van Gelder experimented until he settled into his own version of what CBS was doing, and that became the norm until the electric instruments came in. In the '70s there was no real direction in jazz recording, and by the '80s we returned to the left/center/right approach, which seems to work best for jazz. Today the field is wide open to do whatever enhances the music the most.

What's been hardest to learn about producing?

Understanding about working for people. I learned how to just be understanding and make things cool in the studio. In my early years I didn't understand the concept of working for people. When I worked for Spike Lee, if they didn't record the soundtrack like I

a lot of times you have to fight for it.

Did you learn your studio chops when you went to Berklee?

No, I started out in the sixth grade with a Radio Shack stereo microphone and tape deck. In tenth grade I saved enough money to buy a \$49 Radio Shack mixer and four mics. In high school, I was always recording things. I had to record a demo tape of Wynton, and I couldn't figure out why it didn't sound like the studio. I didn't know anything about reverb. We were in the living room, and he said there was too much air in his mic. I said, "Back up from the mic." You'd learn things like that. Recording my dad with one microphone, I learned that it was better to put the mic at the bottom of the piano than the top, because all the sound concentrates in the center of the sound board. This I figured out laying up under the piano. Branford was trying to overdub a saxophone solo on an Earth,

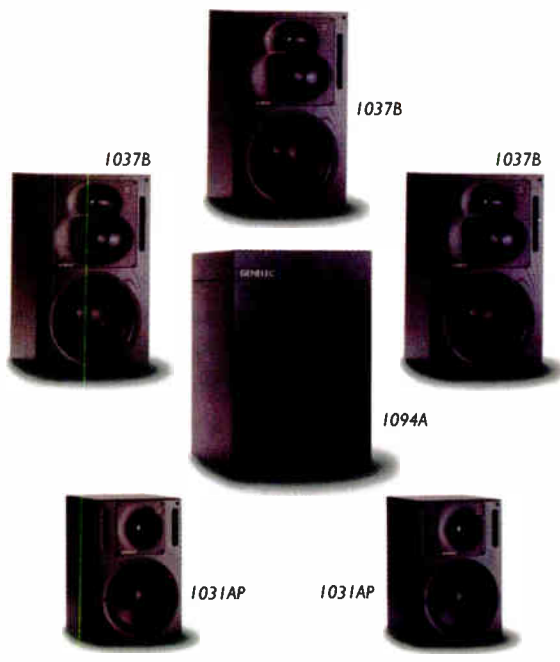


Activate Your Surround Sound.

In the new feeding frenzy of *Surround Sound* – it's more critical than ever that your mixes be accurate from every conceivable perspective – whether it be left, center, right, surround or sub.

With more than ten bi and tri-amplified models (including two subwoofers), all incorporating line level crossovers, equalizers, amplifiers and protection circuitry, GENELEC Active Monitor Systems will make all your surround travels safe 'n sound.

And because GENELEC has twenty years of active monitor design and manufacturing, you can be sure what you hear represents the audio truth – the good news as well as the bad. And that's precisely where one of several GENELEC Surround Sound Active Monitor Systems can save your...



SEE US AT AES BOOTH # 124 & ROOM #301A

Genelec Inc., 39 Union Avenue, Sudbury, MA 01776 508/440-7520 Fax: 508/440-7521
 Genelec OY, Olvitie 5 FIN-74100 Iisalmi, Finland +358 17-813311 Fax: +358 17-812267

GENELEC®
 ACTIVE MONITORING

The Whole Truth and Nothing
 But The Truth

USE READER SERVICE CARD FOR MORE INFO
 World Radio History

PRODUCER'S DESK

early Scott LeFaro records, and he was dealing with some bass tone. Even playing all these fast fantastic lines with Bill Evans, he still had serious tone. By the '70s, they had the bass direct and really just kept the electric sound and ability to play fast and didn't develop their tones. I wanted to use a bass direct—an amp—on Ben Wolfe, because he's playing behind Wynton's big band. And he got indignant with me, refusing to use a bass direct. I was trying to explain to him that guys don't play like the old big bands used to play. If you really listen at Duke's records, the drums never overpower, no

matter how hard Sam Woodyard is playing. The only song that I think the drums overpower the bass is "Pie Eye Blues," which is on *Blues in Orbit*. And that's the worst-sounding tune on the record, from a sonic standpoint. But the true beauty of the big band was that these guys all played in proportion.

Wynton's always talking to us about the old days, but the things that Wynton likes the most are when the musicians are just playing loud. I'm like, "What do you want me to do? Everybody's just playing so loud. Don't ever tell me about getting back to this old sound, because that's not what you're hearing." Ever since the

advent of amplification, everyone just hears things loud, and that's what we prefer. But Duke's band could play real powerfully. Jimmie Lunceford's band had power, and they weren't playing loud. They just had a tight sound. But the point I wanted to make is that I'm not opposed to the bass direct. I will use bass direct. I will use amps, I will use microphones, I will use whatever is available. People like to talk about trademarks. Well, my trademark is that I will use whatever is available. If it's one microphone, if it's your little tape recorder right here, we're gonna get a good sound with it. If it's 15 microphones, if it's digital, if it's analog, if it's 2-track, if it's DAT, whatever it is, I'll record on it. I liken this to playing music. To a student, I would say practice all of your scales, to a musician I say to hell with scales, play some music. Students should be able to obtain optimum sound using two or four mics, but in the professional world, use the technology to your advantage. Other than for two or three instruments, or a great chamber orchestra, I have no faith in the purist, minimalist concept in 1996.

You produced Wynton's Standards Time Volume 3.

The first and only record he really liked his trumpet sound on. But working with my brothers is a trip, because they want to fight against stuff so much. I asked him to play into the microphone, and he didn't want to because he's under this illusion that in the olden days guys played way back off the mic. This is not the case. We did this ensemble record where everybody's playing soft and restrained. I said, "Man, get up close on that microphone and I'll take care of the rest." He gets up on the mic, and it's the most beautiful tone I've ever heard. We did some tricks—he's playing a cadenza at the end of "Where or When" and goes for this high note, and I just turn the volume up and "cling." It's a majestic sound.

Are there jazz producers today who have influenced you?

No. There are a couple of recordings that I like the sound on, but none of the producers seem to have a philosophy about what they do that yields any consistent results. That's what I don't like about a lot of those older recordings—no production individuality. The great producers of today, like George Martin, Teddy Riley, Babyface and Dr. Dre, are cats in popular music. These guys have their

SHOPPING FOR ALESIS PRODUCTS? MAKE THE RIGHT CALL

Alesis products have always delivered maximum performance and innovation at a price just about every musician can afford. It's just one reason why we here at Sweetwater have always been high on Alesis products and why we're probably

one of the largest Alesis dealers in the world. But we don't just sell these great products, we know them, inside and out. Our sales engineers have hands-on experience using all of the many Alesis innovations, from the new **QS8 64-Voice 88-Key Expandable Master Synthesizer** (as well as the **QS6** and **QS7**) to the landmark, second-generation **ADAT XT**, affordable **MicroVerb 4** and the critically-acclaimed **Monitor Two** speakers. Whatever your needs may be in the studio (or on stage), chances are Alesis has the perfect product to do the job.

Over 100,000 musicians around the world already choose Sweetwater Sound for all their hardware and software needs! Shouldn't you be one of them? Give us a try! We're willing to bet you'll be a Sweetwater customer for life.



Sweetwater offers products from the very best names in the music business plus personalized service from our superbly qualified sales engineers and the finest technical support in the entire industry!

(219) 432-8176

FAX: (219) 432-1758
5335 BASS ROAD
FT. WAYNE, IN 46808

sales@sweetwater.com
http://www.sweetwater.com



CALL NOW! YOU MAY BE PRE-APPROVED FOR AN INSTANT LINE OF CREDIT ACCOUNT!

THE ULTIMATE
MUSIC RETAILER!

**Sweetwater
SOUND INC.**

USE READER SERVICE CARD FOR MORE INFO

THE NEXT CHAPTER IN
THE HISTORY OF SOUND
HAS JUST BEEN WRITTEN

TRILOGY

MIXING CONSOLES



A new and innovative concept
in mixing console design.

The Trilogy establishes new and exciting standards that are unmatched by any other sound equipment currently available. Whilst most mixing desks are built with only one primary purpose in mind, the Trilogy has been designed as a front of house mixer, multitrack recording console and on-stage foldback board all rolled into one neat, remarkable package.

Live in the studio, on-stage or out front, equally at home in concert hall, club, theatre, school or venue, the Trilogy will enhance any performance. Backed by Studiomaster's legendary quality control, the Trilogy is the ultimate workhorse for anyone who is serious about sound.

- 3 Band EQ with Mid Sweep
- Main & Group Outputs Balanced
- 6 Balanced Aux Sends
- 4 Stereo Aux Inputs
- PFL & Solo Monitoring
- Expandable - Trilink™ System
- Internally Modular
- External Power Supply
- Robust Steel Construction

WHEN YOU NEED TO GET SERIOUS...

Studiomaster

Studiomaster Inc. 3941 Miraloma Avenue, Anaheim
CA92807 USA Tel 714 524 2227 Fax 714 524 5096
Studiomaster House, Chaul End Lane, Luton, Beds
LU4 8EZ UK Tel 01582 570370 Fax 01582 494343

<http://www.studiomaster.com>

TRILOGY
TRILOGY
TRILOGY

PRODUCER'S DESK

own sound that they create with these instruments.

My production was influenced by pop production. A lot of the Beatles stuff, Earth, Wind & Fire, Parliament, Led Zeppelin, some Stevie Wonder was a heavy influence on me. The Beatles especially because they had the perfect blend of technology and raw grit. They did everything: direct-to-2-track, varied instrumentation, overdubbing, editing, speeding up and slowing down tapes, multiple reverb and effects, and studio size manipulation.

What was the biggest challenge in producing the new album with Branford and your dad?

That was the hardest record I ever had to edit. A lot of the tunes are straight takes, but the tunes that weren't, well...[Laughs] They were recorded on two different days. The first day, my dad would stop playing at the bridge, and Branford would come in. The second day he'd play a full chorus, and Branford would come in at the top. The

choruses would be different tempos, so I'd have to do tricks to kind of make the tempos stay the same. I believe in doing whatever makes the best result. People are

There is a point after which technology can make music sound sterile, and I hate that as much as the whole contrived purist movement.

spending 15 dollars on a CD, and I don't buy that old myth of, "Oh man, it was done in one take!" I heard a saxophone player's record that was done in one take. To me, he should have done more takes. No one's ever come to me and said, "Man, there are too many edits on there." Because edits are designed to make you sound good.

A record is a fantasy automatically, so make it the best you can. You don't see people making movies saying, "Alfred Hitchcock did *Rope* in one-takes, 12 minutes each, so that's what we're going to do." If somebody can convey it in one take, like my daddy, fine. If you can't, that's fine, too.

There's a song called "Country Sun" on *Miles in the Sky*, and Tony [Williams] is playing the loudest drums ever recorded, and the trumpet is distorted, but the music is killing. They've got an out-edit where the tempo changes. Hey, it doesn't matter. A cat at Sony just told me that after Miles started recording with Gil Evans, he did overdubs on almost all of his records, with the exception of *Kind of Blue*. When he was doing *In a Silent Way*, *Sketches of Spain*, *Filles de Kilimanjaro*, *Porgy and Bess*, he did major overdubs. Does that mean that all these jazz aficionados are going to go throw their records away? "Man, Miles overdubbed, it's all some bullshit." Come on, man, give me a damn break. You have a responsibility to provide listeners

DIGITAL MASTERING EQUALIZER

the soul of an analog EQ



"The z-q1 delivers the accuracy and transparency I have always hoped a digital EQ would someday have."

— Joe Palmaccio, Sterling Sound

(the brain of a supercomputer)

If you're looking for a digital mastering equalizer, you have many options. But if you really care how your masters sound, there's really only one choice – the z-q1 from Z-Systems. Don't be fooled by the low price, this is a world-class equalizer, suitable for the very highest-end digital mastering. You won't want to trust your precious masters to anything else.

- sweepable, glitchless controls; works just like an analog EQ
- fully digital ■ 24-bit capable ■ digital gain control
- recallable presets and A/B facility ■ wordmapping (24/20/16 bit)
- 96 KHz option available ■ Apogee UV22 Super CD Encoding available ■ recording and mastering models available

"The z-q1 has digital clarity with none of the expected harshness of digital. It's the first time I really enjoyed a digital signal processor."

— Greg Calbi, Masterdisk

"The z-q1 is superb at emulating the analog feel. It amazes me that this digital EQ can achieve a sound I have always associated with my vintage analog gear."

— Leon Zervas, Absolute Audio

SEE US AT AES BOOTH # 1461

ZSYS.

Z-Systems Audio Engineering
Voice: 352.371.0990
Fax: 352.371.0093
e-mail: z-sys@z-sys.com
web: <http://www.z-sys.com>

with the best possible product by any means necessary. On the other hand, whoever put together *In a Silent Way* or *Live Evil* should be shot. It's obvious that Miles had nothing to do with those because he didn't think about music like that. Edits are in horrible, unmusical places. They just repeated the first tune at the end of the record—unacceptable. If you're going to make those types of decisions as a producer, you have to represent the artist's vision of music, and not everyone is capable of that. But I will say there is a point after which technology can make music sound sterile, and I hate that as much as the whole contrived purist movement.

What about those who believe that jazz should be spontaneous?

If that's the case, let's all do records straight to disc like a gig. Actually, y'all can do it 'cause I won't. The minute you change the instrument balance, use EQ, edit, fix a missed note or do more than one take, you are creating a fantasy. Louis Armstrong overdubbed on his recording with Duke Ellington, John Coltrane overdubbed on *A Love Supreme*, and that is by far one of the greatest recordings in jazz history. The fact that people do more than one take is testimony that everyone wants to sound good. If you found ten jumbled fragments of Shakespeare poetry, you have a responsibility to organize them, not based on how you think it should go, but how Shake would have written it. Take the student who wrote three movements of Mozart's *Requiem*. He did a great job, and no one remembers his name.

But classical music is written, and jazz is improvised.

To a degree. A producer who worked on one of Miles' later projects told me that they put together one of his solos, so it should be Miles & The Producers' solo. Only in jazz do we have this type of arrogance. Classical and pop producers have the right idea. They do whatever it takes to make an artist sound good. We have an obligation to The Creator to represent those individuals who have been blessed with the gift. Musicians, producers, writers are all human; great artists are not. ■

Robin Tolleson is a writer and musician living in Marin County, Calif.



SILENT SOUND STUDIOS



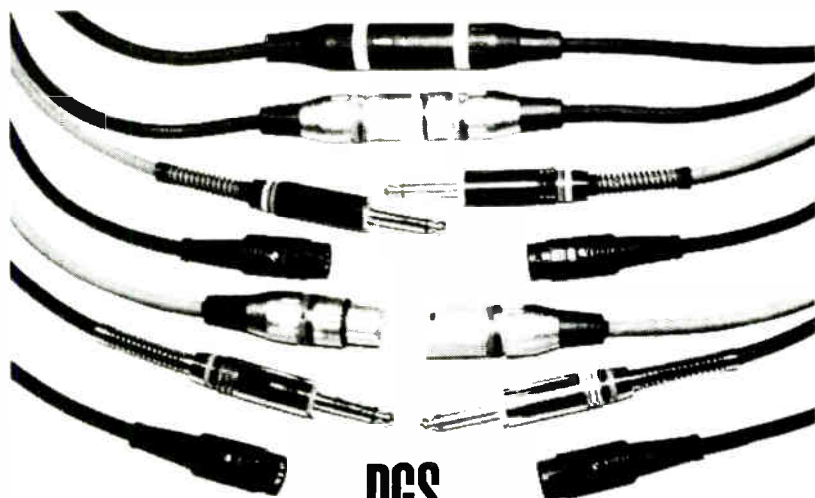
**RUSS
BERGER
DESIGN
GROUP
INC**

4006
BELTLINE
SUITE 160
DALLAS
TEXAS
75244
972/661-5222
FAX
972/934-3935
www.rbdg.com

- RECORDING AND BROADCAST FACILITY DESIGN AND PLANNING
- ARCHITECTURE/INTERIORS FOR ACOUSTICAL SPACES
- NOISE AND VIBRATION CONTROL
- ROOM ACOUSTICS AND SOUND ISOLATION

USE READER SERVICE CARD FOR MORE INFO

DELTRON GOTHAM INTERCONNECTS MAKE SWEET MUSIC



AUDIO CABLES

- Microphone cables
- Digital cables
- Multipair cables
- Ultraflexible
- Double shielded
- Digital multipair cables

DGS
PRO-AUDIO
Deltrow/Gotham
US Sales & Stocking Warehouse

800-292-2834

CONNECTORS

- XLR's, 1/4" phone, phono, and Midi's
- New-foolproof channel identification for XLR's
- New-silent version 1/4" phone plug

SEE US AT AES BOOTH #1204

1996 AUDIO PRODUCTION FACILITIES SURVEY RESULTS

STUDIOS LOOK TO THE FUTURE

by Blair Jackson

These are interesting times for the recording and post-production industries, and the results of *MIX*'s bi-annual Audio Production Facilities survey reflect that there are fundamental changes occurring in the way studios operate in every level of the business. In the two years since we last conducted the survey, more studios have embraced (some reluctantly) modular digital multitrack recording as a low-cost alternative to standard 2-inch for some of their customers. Also, with the number of sophisticated home studios still on the rise, more and more studios have found themselves in the position of being finishing houses for projects begun at home—for drum tracking (or replacement of programmed parts), vocals and mixing on automated desks.

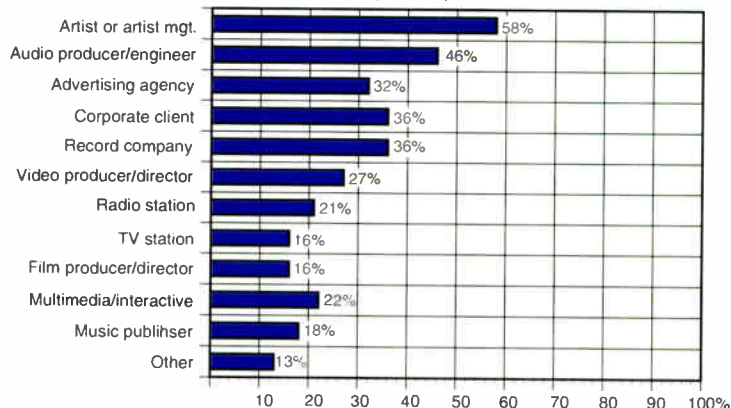
Overall, the mood among the survey's respondents was quite bullish. A whopping 80% said they are either "very optimistic" or "somewhat optimistic" about future growth in their segment of the industry (recording, post, mastering, etc.), and 65% expect their revenues to increase in the next year. About 25% noted they expect their business to stay at current levels, and only 2% think they will see a decrease in revenues.

WHO ARE THESE GUYS, ANYWAY?

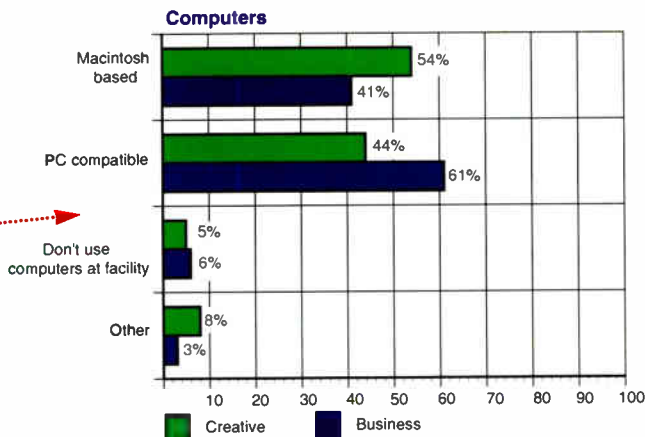
The largest category of respondents in our survey (see "Methodology" sidebar) described their primary business environment as an audio production facility (61%), followed by video/film production or post-production facility (16.3%), broadcast production facility (13%), remote facility

(7.6%), corporate, educational or institutional facility (5.2%), duplication/replication (3.3%) and that perennial favorite, "other" (6.1%). Many of those who answered the survey fulfilled numerous functions at the facilities where they were employed. There was a nearly even number of people who said their main or secondary job function was being an owner/manager (74.5%) and those who described themselves as sound engineers/mixers (73.9%), with lots of overlap between the two designations. The other job titles

Types of Clients (view B)



that scored most impressively were audio producer (53.2%) and musician/artist (49.3%). Other categories included audio post editor/mixer (28%), studio technician (27%), and sales and marketing (19%). Geographically, the most respondents came from the Northeast (37.6%), followed by the West Coast (37%), the Midwest (23%), the South



(13.6%), the South Central region (6.2%) and the Southwest/Mountain area (6%). Nearly half of the facilities surveyed (47.2%) have been in operation six years or fewer, but an impressive 24.8% have been in business for more than 15 years—all hail the survivors!

STAFFING AND SALARIES

Not surprisingly, the number of employees who work in each of these facilities varies tremendously: 39% have just one full-time employee, 21.5% have two or three, 10.1% have four to six, 3.9% have seven to ten, 3.5% have 11 to 20, 2.9% have 21 to 35, and 11.2% (!) have more than 35 full-time employees. 45.7% had one to three part-time employees.

Salary figures were down a bit from our 1994 survey, but as always should be taken with a grain of salt. There are a lot of folks who make more than these figures, and a bunch who make less, too. As they say, your mileage may vary. The mean (average) for staff producers or directors went down \$1,000 to \$43,000; recording engineers also went down \$1,000 to \$35,000; assistant/second engineers stayed the same at about \$26,000; tech/maintenance-types showed the biggest decrease, dropping \$4,000 to \$34,000; sales/marketing personnel also dropped \$1,000 to \$38,000; and setup staff/trainees stayed at \$21,000.

BUSINESS AND EQUIPMENT TRENDS

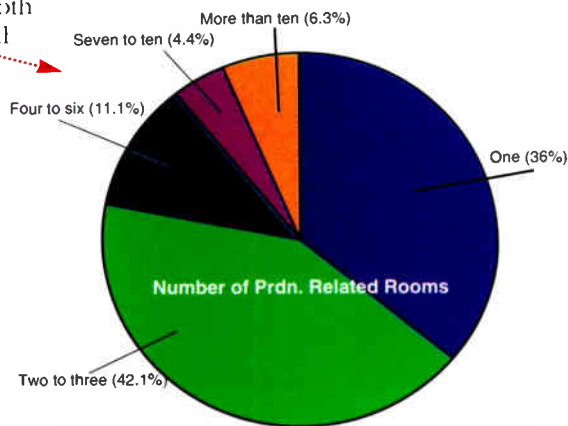
The watchwords of the late '80s and early '90s, when the recording business was going through a major shakedown/winnowing were "Diversify or Die!" And indeed, many of the facilities that survived the recession years were the ones who managed to branch out into different kinds of services. Today, there are relatively

few music recording-only studios. The last decade has seen a large increase in the number of studios that have added audio post-production to their list of services, and once again that category (encompassing both post for video and film) leads all others among services that studios plan to add in the next year, with 18%. Second in that category is CD premastering/digital editing at 14.1% (no doubt fueled by a greater number of products in that area at lower price points). That was then followed by in-house record company services with a surprising 12.1%, multimedia/computer graphics at 10.8%, and a number of other categories in the low single digits.

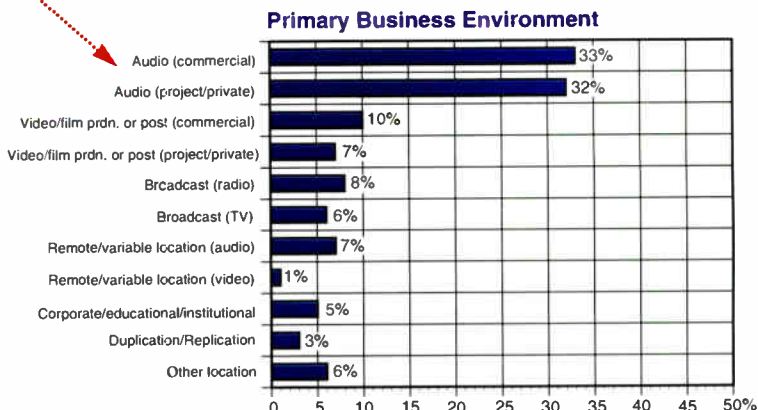
Are you joining the 3.7% of the respondents who are planning to spend more than half a million dollars on construction, remodeling and renovation next year? Or are you part of the 65% who plan to spend under \$10,000? That group also constituted the largest segment in expenditures in this category for the past year, at 74.6%. The second biggest group was the 11.1% who spent between \$10,000 and \$25,000;

16.1% plan to spend that amount in the next 12 months.

When it comes to expenditures for equipment, the figures go up in most categories. The largest is still in the under-\$10,000 group, with 38.7%, and 34.8% planning to spend that much on gear next year. Next was the \$10,000-to-\$25,000 range, with 29.1% saying they spent that much last year and 30.9% noting they expect to spend that next year. In the \$25,000-to-\$50,000 range, 14.5% said they spent that last year and 15.4% plan to spend that next year. Two percent of the facilities spent more than a million bucks in this category last year, and 2.1% plan to spend that next year.



In terms of specific equipment purchases projected by the facilities, the top categories of gear were CD recorders, 28.6% (only 27% said they already owned CD recorders); outboard mic preamps, 19.4%; multi-track digital audio workstations, 19%; currently produced microphones, 18.8%; soundproofing/acoustical materials, 16.8%; compressor/limiters,



16.6%; other signal processors, 16.6%; D/A or A/D converters, 15.3%; console automation systems, 14.6%; modular digital multitracks, 13.3%; and numerous other categories below that.

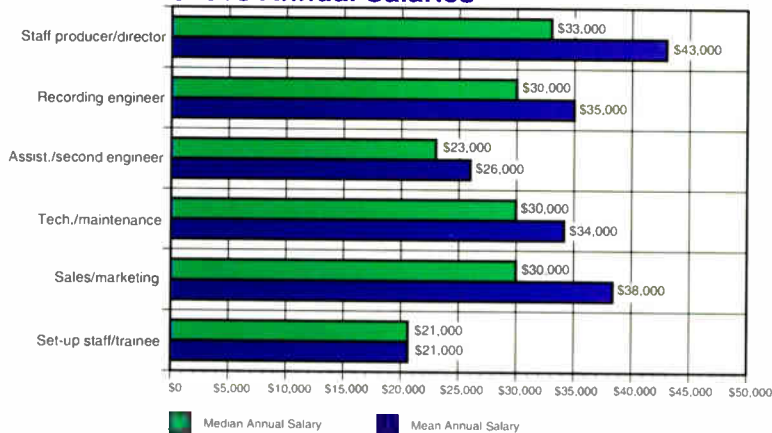
In the computer arena, 24.7% of the facilities say they are planning to purchase new digital audio processing/editing software, 20.6% are going to buy high-capacity hard disks, 17.7% rewriteable optical drives, 16.2% audio processing cards, 12.6% CD-ROM players and 11.1% DAT/cartridge storage devices.

Finally, when asked what business issues in the audio industry the facilities are most concerned with—and multiple answers were accepted—the top responses were staying current on technology/equipment (73.1%), marketing/promoting their business (47.1%), growth of the home studio/project recording market (41.3%) and pricing/studio rates (36.2%). ■

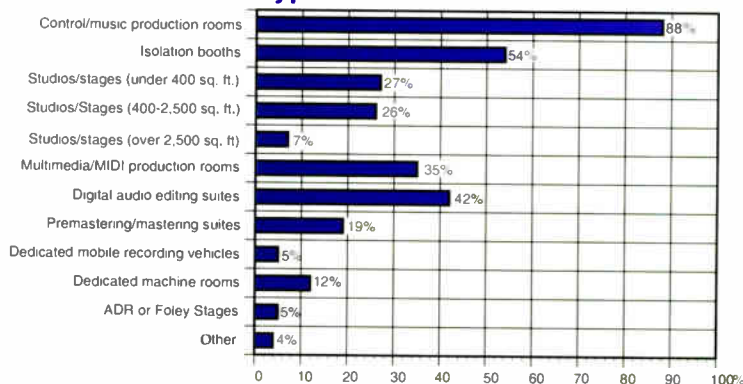
Blair Jackson is the executive editor of Mix.

© 1996 *Mix* magazine
Cardinal Business Media • Music & Entertainment Group

Gross Annual Salaries



Types of Rooms



METHODOLOGY

The **Mix 1996 Audio Production Facilities Report** is based on the results of a survey mailed at the beginning of July 1996 to 1,000 randomly selected (*n*-th name) domestic *Mix* subscribers in the following circulation categories listed on *Mix*'s qualified subscription form, in quantities representative of the total number of subscribers in each category:

Facility Type
% of List

Total Names
by Category

Recording studios

(private recording studios, project-oriented commercial studios, commercial studios offering full production services, facilities specializing in MIDI/computer-based recording services, remote truck/location recording, and corporate/institutional/government facilities)
68%

680

Video/film facilities

(production, post-production, remote truck, and multi-image production)
14%

140

Mastering-only facilities

1%

10

Broadcast facilities

(radio stations, TV stations, other broadcast production facilities)

11%

110

Music/recording school or program

6%

60

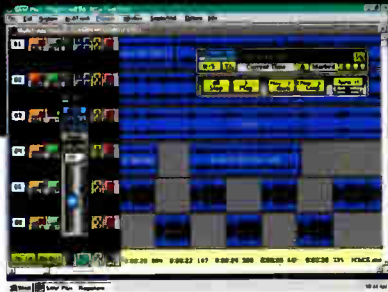
The questionnaire packages, which were mailed by an independent mailing service, each contained a four-page questionnaire, a cover letter, a \$1 bill, and a stamped return envelope. A reminder postcard was sent to the list two weeks after the questionnaire mailing. All completed questionnaires were returned directly to The Tab-Lab, an independent market research firm based in Portland, Ore. for processing and tabulation. Four hundred sixty-four completed questionnaires and 11 undeliverable questionnaire packages were returned by the survey deadline of August 2, 1996, for a total response of 47%.

Please note that not all respondents answered every question in the survey. The size of each question's response universe is indicated by the symbol Σ = (sum). The exact wording of questions included in the original questionnaire has been retained in this report.

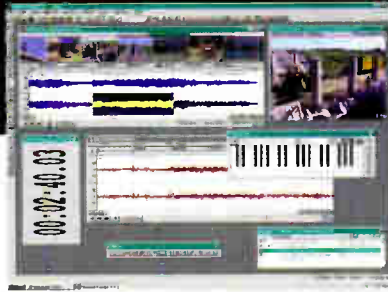
For a complete survey report, please send a check or money order for \$15 (U.S. funds only) to: *Mix* magazine, 1996 APF Report, 6400 Hollis Street #12, Emeryville, CA 94608.

"We Recommend CardD"

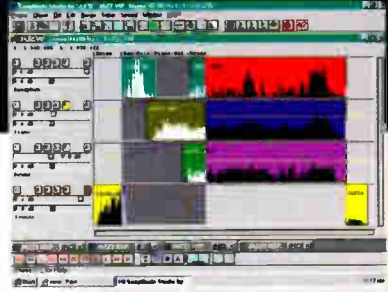
SAW PLUS™
Innovative Quality Software



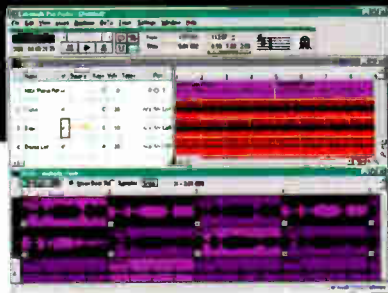
SOUND FORGE™
Sonic Foundry



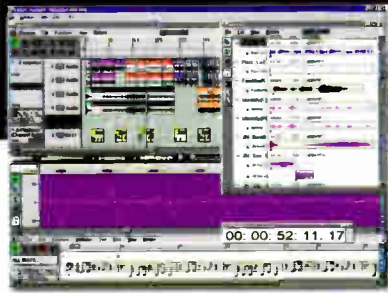
SAMPLITUDE STUDIO™
SEK'D



CAKEWALK PRO AUDIO™
Cakewalk Music Software



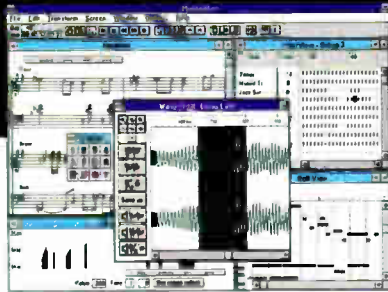
LOGIC AUDIO™
EMAGIC



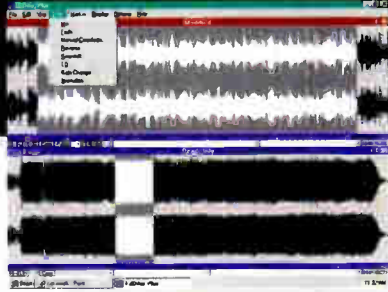
CUBASE AUDIO™
Steinberg



MUSICATOR AUDIO™
Musicator A/S



EDITOR PLUS™
Minnetonka Software



DIGITAL ORCHESTRATOR PLUS™
Voyetra



At Digital Audio Labs, we're very proud of the company we keep. Our **CardD™** family of PC recording cards are recommended by the top Windows audio and MIDI software companies for good reason. The **CardDplus™** and **Digital Only CardD** offer the performance and compatibility that make these programs truly shine.

Now the **CardD** supports Windows 3.1, '95, and NT, allowing it to run with even more of your favorite editing, multitrack, and MIDI/Audio programs. And, since it's a **CardD**, you can rest assured that the audio quality will always be there.

So, when considering a PC-based hard disk recording system, make the choice that maximizes your software choices, audio quality, and value. Choose the **CardD** from Digital Audio Labs.

Digital AUDIO LABS

13705 26th Ave. N. S-102 Plymouth, MN 55441

612/559.9098 Fax 612/559.0124

dalinfo@digitalaudio.com

©1996 Digital Audio Labs

SEE US AT AES BOOTH # 1347

CODECS

PART TWO

AUDIO PROCESSING TECHNOLOGY

APT's (Los Angeles) proprietary apt-X100 digital audio compression system uses a sub-band, adaptive differential pulse code modulation technique that enables real-time compression of 16-bit PCM to four bits; high-quality audio can be transmitted at data-transfer rates as low as 128 KB/s. The complete 4:1 encoding and decoding functions are housed on a single, ROM-masked AT&T DSP16A IC, known as the APTX100ED, which features variable sampling frequencies, selectable mono/stereo mode and an embedded auxiliary data facility up to 12 KB/s. Up to eight multiplexed channels can be fed into the input of the decoder; output selection is user-programmed. APTX100ED requires only "glue" logic for the timing circuits, interfaces and ADC/DAC.

In addition to its wide-scale use in satellite transmissions, ISDN links, storage media, broadcast automation, workstations and other applications, the apt-X100 codec can also be used to provide 5.1-channel DTS motion-picture sound. A timecode stripe optically printed onto the film is used to synchronize external CD-ROM drives that carry the digitized, data-reduced soundtrack.

The DSM 100 Digital Audio Transceiver provides simultaneous transmission and reception of full-bandwidth stereo audio over low-capacity digital links such as ISDN and Switched-56. It features a sample rate converter; integral timecode and RS-232 user data facilities; analog line and digital (AES/EBU) I/O; inte-

[Last month, Mix covered the basics of codec technology, in the first part of a two-part series. This month, we present the various hardware platforms on the market—Ed.]

gral IMUX option for connection to synchronous modems, ISDN and Switched-56 networks; V.10/V.11 (RS-449) compressed audio data interface; and a range of sampling frequencies from 16 kHz to 48 kHz.

The ACE100 PC Expansion Card provides software-selectable sampling rates from 7.5 kHz to 48 kHz; simultaneous real-time playback and record; analog and digital audio I/O; and optional Windows driver. The card plugs directly into the expansion slot of any IBM-AT or compatible system. Up to four times as much data to be stored on a PC disk drive; alternatively, uncompressed, 16-bit PCM audio can be recorded to or played from the hard or optical disk.

The new ADK200 PC Expansion Card supports simultaneous multichannel record/playback, individual channel processing, crossfades and multicard synchronization.

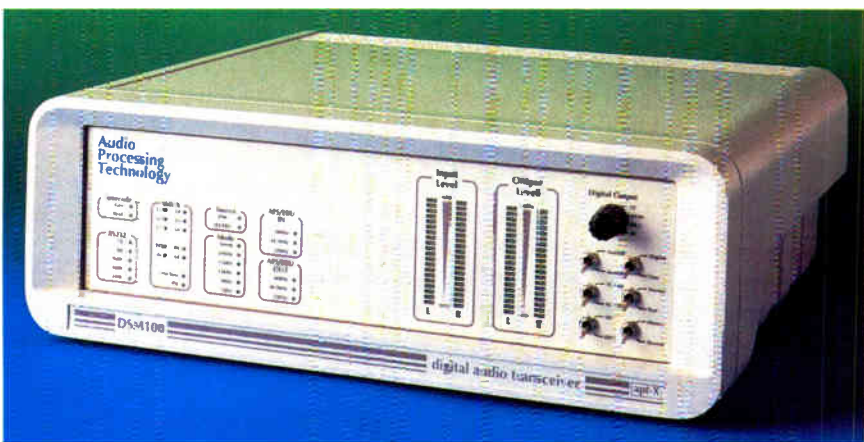
The MCE/D 800 encode/decode system provides distribution of up to eight channels of full-bandwidth audio over T1/E1 digital circuits, enabling the transmission of multilingual audio over networks that were designed to carry single-language audio. The MCE/D 800 is also suited for point-to-multipoint distribution and multichannel real-time studio applications.

The RMC 240 works with APT's WorldNet codecs to provide automated remote recording and playback of DAT's and VTRs using RS-232/422 interfaces via the auxiliary data port, which is standard on DSM 100

.....
BY MEL LAMBERT



CDQ Prima 230 by MUSICAM, Telos Zephyr Express, APT's DSM 100 Digital Audio Transceiver and MCE/D 800 8-channel encode/decode system



and DRT 128 systems. Keypad controls are provided for tape transport and toggle switches for modes of operation; the system also receives and displays timecode from remote units.

The DRT 128 Digital Reporter Terminal is a portable unit (with mic input and headphone feed) that provides simultaneous transmission and reception over ISDN lines at 16 and 32kHz sampling frequencies. An integral, two B-Channel terminal adapter is said to enjoy full telcom approval in 52 countries, while a 2-channel synchronizer and inverse multiplexer is capable of compensating for up to three seconds of differential delay.

A new codec, apt-Q, is described as a scalable, sub-band transform-based algorithm that will be offered with two practical levels of compression: nominally 12:1 and 20:1. Capable of delivering 15kHz stereo at 56 KB/s or 20kHz stereo at 128 KB/s, the apt-Q coding delay is approximately 90 ms. In addition to conventional transform-coding techniques, apt-Q uses a perceptual model that determines masking thresholds for not only the left and right signals, but also sum and difference; adaptive entropy coding is also used to provide a further stage of bit-rate reduction.

DOLBY LABORATORIES

Dolby (San Francisco) offers a trio of AC (Audio Code) Series codecs. AC-1 was first used in 1985 for direct broadcast satellite applications by the Australian Broadcasting Corporation, and has since been adopted for other DBS services, satellite communication networks, and digital cable radio systems; data rate is between 220 and 325 KB/s per channel, depending on the application. A form of adaptive delta modulation (ADM), AC-1's data stream contains information not on the absolute value of the audio signal, but on changes in value from sample to sample.

AC-2 uses advanced adaptive 256-band transform coding at a data rate of 128 or 192 KB/s per audio channel. A single Motorola 56000 DSP IC is used to perform 2-channel encoding or decoding for transmission links or disk recording. The process is used within the Dolby Fax system to transfer sound elements and mixes between post facilities via T1 and dial-up ISDN phone lines. Several manufacturers, including 360 Systems and Studer Editech, offer optional AC-2 for increasing disk capacity and/or enhancing data throughput to/from disk-based systems. (The



Dolby Fax and Dolby AC-3 systems

Dyaxis II system, for example, enables more than eight tracks to be recorded/replayed simultaneously from a 3.5-inch removable MO drive.)

AC-3 is described as the first perceptual coding scheme designed specifically to process multichannel digital audio, and has been providing 5.1-channel Dolby Digital sound for motion pictures since 1992; it was launched in 2-channel DBS applications in 1994. In addition to its use on consumer laserdiscs and the 525/60 Digital Versatile Disc systems (DVD for North America and Japan; the rest of the world will use MPEG-2), AC-3 has been selected to provide surround sound with HDTV broadcasts, which are expected to begin experimentally in the U.S. during 1997. AC-3 is said to be unusually versatile, in that parameters such as bit-rate and number of channels can be tailored to particular applications. All variations are based on the same operating principles, however, and have been engineered to ensure compatibility among formats and adaptability to future needs.

Unlike other codecs, AC-3's data bits are distributed dynamically among the filter bands as needed by the particular frequency spectrum or dynamic nature of the program. According to the company, "A built-in model of auditory

masking allows the codec to alter its frequency selectivity (as well as time resolution) to make sure that a sufficient number of bits are used to describe the audio signal in each band, thus ensuring noise is fully masked. AC-3 also decides how the bits are distributed among the various channels from a common bit pool, [a] technique [that] allows channels with greater frequency content to demand more data than sparsely occupied channels, for example, or strong sounds in one channel to provide masking for noise in other channels."

Data rates range from as low as 32 KB/s for a single mono channel, to as high as 640 KB/s. Typical applications include 364 KB/s for 5.1-channel motion picture coding, 384 KB/s for 5.1-channel Dolby Surround consumer formats, and 192 KB/s for 2-channel audio distribution.

AC-M is a newly developed codec, based on a more "soft" data-compression ratio of between 2:1 and 3:1, and which is used in the recently unveiled Dolby Digital Dubber. Designed specifically to record eight tracks of 20-bit material on removable media, including Iomega Jaz and magneto-optical drives, AC-M is said to be optimized for multiple record/replay generations. Initial tests have reported as many as 14 en-

code/decode processes being possible with no audio degradation.

The Model DP521/DP522/DP523/DP524 family of 2-channel codecs can be used for point-to-point, point-to-multipoint and multipoint-to-point signal distribution; ISDN, Switched-56, T1 or DS-3 networks; recording/post-production studio interconnection with or without video; and voice-over and other applications. A multiplicity of AC-2 and -3 perceptual coding algorithms are supported to provide audio transfers at a total data rate between 56 and 384 KB/s. In the case of AC-3, single-channel, 2-channel and composite stereo algorithms are supported.

The Dolby Fax System enables users to exchange AC-2 data-compressed sound files or perform real-time ADR/voice-over sessions between remote locations using low-cost ISDN lines. Complete send/receive Dolby Fax systems consist of three rack-mount units: DP523 Digital Audio Encoder, DP524 Digital Audio Decoder and ISDN Terminal Adapter/Inverse Multiplexer. To place calls, a Windows-based dialing program is furnished with the system; alternatively, an optional palm-top controller can be used to control the ISDN unit. An add-on module transmits/receives both timecode and 9-pin machine control via the units' auxiliary data ports. For enhanced compatibility, the new DP503 Encoder handles not only AC-2/3-encoded material, but also MPEG-1 Layer II. (The unit also handles direct dialing through the terminal adapter, without the need for an external PC). The current DP524 decoder can be modified to handle MPEG-1 transmissions.

PHILIPS KEY MODULES

Philips (Bohemia, N.Y.) produces a series of MPEG-based codecs and related systems. Philips' Precision Sub-band Adaptive Coding (PASC), used in Digital Compact Cassette, is a member of the MPEG Layer I "family." The audio spectrum is divided into 32 equally spaced sub-bands; for each sub-band, the relevant part of the model is adapted according to the audio data it contains. Audio above the adapted hearing threshold is coded, while anything below it is ignored. Using such a coding scheme reduces the amount of a medium required to make an audio recording by a ratio of 6:1.

The Philips Real-Time Audio MPEG Codec can be installed in any PC, providing MPEG Layer I and Layer II audio encoding/decoding. Input is via S/PDIF

"...more features and higher-resolution
D/A converters..."

Mix Magazine, Oct. 1996

"...more back panel ports than in a
wine cellar."

EQ Magazine, July 1996

"...the price vs. performance ratio is
Key and Panasonic has the secret."

EQ Magazine, July 1996

"...One word: wow!"

Radio and Production, May 1996

SV-3800

.....
Sold out
Performance!
.....

We knew we had a winner with our new SV-3800 Pro-DAT Recorder/Player. Better sound, greater flexibility, and easier to use. We just didn't know how big a hit it would be.

Now you can find them everywhere from the high-end recording facilities to the local project studios. Perhaps the only place you might have had trouble finding the SV-3800 was at your Panasonic dealer. No wonder—the SV-3800 Pro-DAT Recorder comes complete with remote, at \$1,695.

Don't worry however, new shipments are headed this way. Don't miss the next performance of the SV-3800. Call 1-800-777-1146 for your local Panasonic Dealer

Original Broadcast Equipment Supplier of the 1996 Olympic Games



Panasonic
Broadcast & Television Systems Company

World Radio History

If You Need More Power Than This...



Maybe You Should Run For President

Our new MFA Series of amplifiers deliver the power that digital audio sources demand. Whether used for motion picture sound tracks or live contemporary music, these models faithfully reproduce the extended dynamic range of today's technology. High power, great sound, and a full Five Year Worry Free Warranty. Why buy anything else?

* 24,000 watts as illustrated: Eight MFA-8000 amplifiers combined, each putting out 1500 watts per channel into a 2 ohm load. Also available: the MFA-6000, with up to 900 watts per channel.

POWER AMPLIFIERS BY **ASHLY**

Ashly Audio Inc., 847 Holt Road, Webster, NY 14580-9103 • Toll Free: 800-828-6308 • TEL: 716-872-0010 • FAX: 716-872-0739 • Canada: Gerraudio Dist. Inc. 416-696-2779

International Agent: F and F Europe Ltd. 714 140 0760 • Internet: www.ashly.com

digital port. Sample rate frequencies are between 11 kHz and 48 kHz. Input audio can be copied to hard disk at a bit rate between 32 and 448 KB/s (Layer I) and 8 to 384 KB/s (Layer II). Bit rate is user-selectable and defines the compression factor.

The SAA 2500 MPEG Audio Source Decoder supports all audio modes, bit rates and sample frequencies for ISO/MPEG-1 Layer I. It provides integrated audio post processing for control of signal level and inter-channel crosstalk, demultiplexing of ancillary data in the input bit stream, automatic digital de-emphasis of the decoded audio signal, automatic sample frequency and bit-rate switching in master input modem, and automatic synchronization of input and output interface clocks in master input mode. The more advanced SAA 2502 supports Layer I and II of MPEG-1 and the MPEG-2 requirements for a stereo decoder, plus low sampling rate decoding.

Currently under final development is the Real Time Varybit MPEG Audio Encoder, which uses proprietary Philips algorithms. A single full-size card that can be installed in any PC, the unit was scheduled to be available by July/August 1996.

MUSICORE is Philips' real-time audio encoder/decoder chip set for ISO/MPEG (Layers I and II) encoding/decoding, and was developed to enable hardware manufacturers to develop audio products. It is available as chip set, or as module with all components mounted on a small PCB. Digital I/O is managed via the Real-Time Audio interface via a fast-packet protocol and a few hardware control lines. The 64 KB Boot ROM contains the encoder and decoder DSP software; 32 KB SRAM is used for data storage. Encoding sample frequencies are between 16 kHz and 48 kHz.

MUSICAM

MUSICAM USA has been around for 17 years and has 12,000 codecs installed throughout the world (more than any other manufacturer), offering an improved version of Layer II, as well as Layer III and G.722. The flagship product is CDQPrima, a series of five codecs ranging from simple to full-featured, with bit rates up to 384 kb/s. Up to eight optical isolated inputs, and relay outputs, are provided, plus timecode. The system supports ISO/MPEG-2 Layer II at 16, 24, 32 and 48 kHz, plus ISO/MPEG-1 Layer II at 32 and 48 kHz.

Speed-dial addresses and other user features are also offered.

The company will also be showing new products at AES. RoadRunner is a high-quality, mono, portable codec for use in the field or studio. It is suited for voice-overs or special events, with 15kHz quality over a single ISDN B-channel. RoadRunner comes complete with a built-in Terminal Adapter and NT-1 interface. It speaks MUSICAM, Layer II, Layer III, G.722, G.711, and it

can be connected directly to an analog line for 3.3kHz audio when ISDN is not available.

The new Olympian is a portable stereo codec offering 20kHz fidelity from the field. Like the RoadRunner, it comes ready to plug and play. Olympian contains MUSICAM, Layer II, Layer III and G.722 at various bit rates. Unique with the Olympian is OMSS™, Olympic Memory Snap Shot, a one-button memory system that saves all parameters

MPEG EXPLAINED

MPEG has its origins in the late '80s, when a JPEG (Joint Photographic Experts Group) standard for bit rate reduction had been developed for still images but was considered inadequate for moving pictures. To avoid a standards battle, the Moving Pictures Expert Group (MPEG) was formed to devise a suitable coding scheme for transmitting and recording moving pictures on a variety of storage media. A meeting in 1992 between the International Standards Organization (ISO) and the International Electrotechnical Commission (IEC) resulted in a standard for audio and video coding known as MPEG-1 (ISO/IEC 11172). MPEG-2 (ISO/IEC 13818) became a standard in late 1994. The main differences between MPEG-2 and MPEG-1 are optional lower sample rates (16, 22.05 and 24 kHz) and psychoacoustic multichannel encoding.

For audio, MPEG defines three operational modes known as Layers I, II and III, with each layer offering increased compression.

- Layer I is a simplified version suitable for consumer use, where very low bit rates are not necessary.
- Layer II offers more compression than Layer I, and has applications in consumer and professional audio, including broadcasting, TV, telecommunications and multimedia.
- Layer III offers even more compression, and extends MPEG-1 applications into specialist areas of professional audio.

Outside of North America and Japan, the new DVD consumer-video format incorporates MPEG-2 Layer II for multichannel audio. In addition, Variable Bit Rate (VBR) will be used to increase the encoding efficiency of

audio and video. MPEG audio enables the bit rate used by the encoder to be adapted every 25 ms to the complexity of the sound being encoded. The more complex the sound, the higher the required instantaneous bit rate. Using VBR, the capacity required on DVD for an audio stream will correspond to the average bit rate required for that soundtrack. In contrast, a Fixed Bit Rate (FBR) encoder requires a bit rate necessary to encode the most complex audio information, resulting in low encoding efficiency for simpler sounds.

VBR is said to be no more complex to implement in the encoding hardware than FBR, as the output of the psychoacoustic model is the required bit rate per sub-band necessary to code the signal without artifacts. In fact, using FBR requires the encoder to perform additional actions to adjust the bit rate to the desired fixed rate. At the decoder, additional complexity required for VBR is zero; in practice, many of the existing MPEG audio decoders already support VBR.

The MPEG-2 bitstream has been designed with enhanced compatibility. The minimal number of channels to be reproduced is assumed to be two, for stereo. A first extension provides additional information with which it is possible to retrieve the 5 (+1)-channel information; with additional information in a second extension, it is possible to reproduce the full 7 (+1) channels. This compatibility is achieved by employing matrix techniques during encoding and decoding. The low-frequency enhancement signal is transferred as a separate channel, since it only requires a small number of encoding bits. ■

recorders came up. Weston and Daniel had worked together on several films since meeting during location work on Stanley Kubrick's *The Shining*.

"We looked at one of DB's 8-track AMS AudioFiles, which would have done the job, but is far too big to wheel around on a trolley," says Weston. "A smaller option was the SADiE Portable from Studio Audio & Video, which I'd seen at the APRS exhibition. I didn't have too much time between films, but I went up to their premises and checked that it could do what we wanted and ordered one. It was a bit of a chance, as I'd never used one and I don't think it had been used in this way before."

The SADiE Portable is a compact, customized Pentium 75 PC running SADiE Version 3 software. It features SADiE electronics and a color LCD screen; audio storage is on removable SCSI hard drives.

The music tracks were recorded in London—orchestral beds at CTS in West London; vocal tracks at Whitfield Street and Metropolis using a Sony 3348. The digital multi-track was then submixed to a 3324 at Metropolis to provide eight tracks for playback: stereo orchestra, vocals spread over four tracks, and two tracks containing 25 fps timecode and 'Speaking Clix,' a technique developed by Daniel that uses a spoken count and a pip on the frame every two seconds. The system makes the film editor's job easier when laying up musical tracks against pictures—particularly on multiple repeat sections, when it is not so easy to ensure that the right chorus has been selected.

The digital control track was run at 30 fps nondrop-frame timecode. The 25/30 fps timecode tracks were needed because a decision had not been made on whether to post the movie in the U.S. or Europe, though it had been decided that it would be edited on film.

The 8-track submix was designated the playback master. From this, copies were made onto Tascam DA-88, DAT, Exabyte, ½-inch tape (Nagra) and CD-R. The Exabyte was used to load the audio into the SADiE, while the other formats were primarily for backup and keeping location options open.

As the music tracks arrived, they were loaded into the SADiE by Colin Codner, who then had to start marking up the songs line by line and locating cue points.

"We had a songbook known as 'the bible' that contained all the songs with each lyric line numbered," recalls Codner. "All the cues had to be entered and the songs broken down, with onscreen sections named. It was essential to check in great detail where the recorded tracks differed from the bible and note all those changes. This took about four weeks to complete."

Codner acted as sound playback operator for the shooting. He wasn't familiar with the SADiE before and had to take a hurried course in it and learn the rest on the job.

Due to shooting schedules, there was no time to check out how the complete system would work in practice—this was very much a seat-of-the-pants operation. Weston managed to tempt Daniel away from his management desk to act as technical backup, which was doubly important as there was little technical expertise to be found at the shooting locations. It wasn't until the start of shooting in Buenos Aires

that a method for running the systems fully evolved.

On the set, the SADiE sat on an Urstacart, along with a Soundcraft 8-channel LMI mixer, which was used to create the playback mixes. Splits of the SADiE outputs fed a loom heading to a second Soundcraft mixer, which was used to create a mono mix of the playback for rushes, which were recorded on one track of a Nagra-D digital recorder, with a second Nagra-D running as backup. The remaining tracks on the 4-channel Nagra-D were used to record the Speaking Clix and two from location sound.

Despite having been apprehensive about the SADiE's performance on location, Weston says it worked very well. In fact, the spare system that had been lent as backup wasn't used. Codner took the precaution of ensuring that SADiE operated under an umbrella; he also had a screen hood made up so that the color LCD screen was readable in intense sun-

light. The SADiE was run continuously on a UPS fed by a small generator until mains power was available on set. The generator setup enabled playback during rehearsals while set lighting was arranged.

"We racked out a truck thinking that we might have to run it inside, but it was always used outside," says Weston. "Initially, we had some problems with the removable hard drives, but

we overcame that. A 'tropical box' we

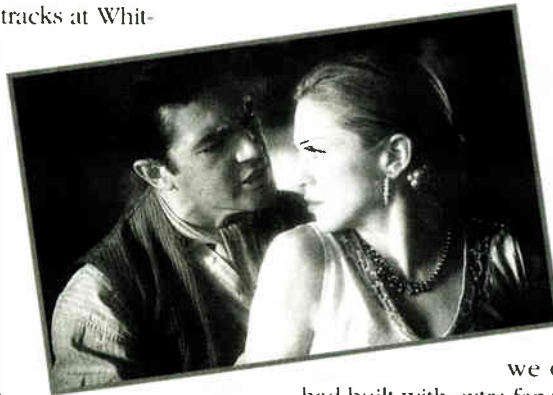
had built with extra fans wasn't needed, and the unit worked in all the location conditions, including sand and rain, from the 90-degree heat of Argentina to the snow in Hungary."

There was one minor technical hiccup in Hungary when the SADiE wouldn't play from its hard drive, but a call to an emergency backup number at SADiE in the UK resulted in Codner and Weston "fixing it over the phone"—a multiway ribbon cable had worked loose—and the system was fixed before shooting resumed. The fact that so much of the other equipment proved troublesome on location, mainly due to rough handling while shipping to Argentina, says much for the SADiE Portable's reliability.

Audio playback on set was distributed either by Bose 822 speakers or by Garwood Radio Station in-ear monitor systems, depending on the situation and the artist. Whenever possible, the Radio Station in-ear system was used, but sometimes a close-up would show even the very fine filament antenna cable to the ear piece. To overcome this obstacle, the crew created an induction loop in the form of a loop of cable plugged into the Radio Station receiver. This loop was placed around the artist's neck, and an antenna-less induction ear piece was used to pick up the signal from the loop. In situations requiring a large number of induction ear pieces, a cable induction loop was placed around the feet of the artists and fed from a power amplifier.

In one scene, Antonio Banderas was placed on the back of a truck and directed to lip sync to a long lens. "I'd built some 'hot boxes,'" says Weston, "a speaker box containing a JBL speaker, a car amplifier and a lead acid battery. We attached a Radio Station receiver to the hot box and hid it on the truck. Banderas could adjust the playback level from a controller in his pocket, and we sent the playback signal through the Garwood from 300 yards away.

"In some situations, the Garwoods were used in place of cables," he continues. "Alan Parker doesn't like to hang



The choice is *crystal* clear.



The new FMR-150 wireless microphone system from Telex offers maximum audio and RF quality with an added feature: noiseless crystal-controlled frequency agility. Our patented Posi-Phase™ true-diversity circuitry gives rock-solid freedom from dropouts and noise-ups, while Posi-Squelch™ auto suppression combines the improved range and audio quality of a true noise squelch, with the security of a tone-coded squelch. The FMR-150 also features a wider range and choice of stock

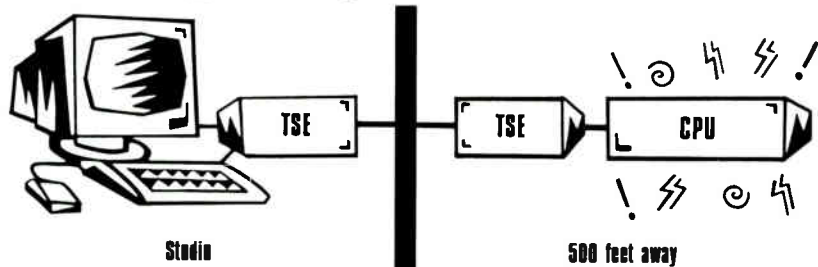
frequencies, with custom frequencies available. This crystal-controlled system utilizes three widely-spaced frequencies that allow the user to instantly select a clear channel in the event of interference. You'll feel confident recommending a system that's designed and built in the U.S.A. with our exclusive 3-year warranty. And behind it all is our reputation for reliability and performance. Just what you'd expect from a sound company like Telex.

Telex®

9600 Aldrich Avenue South • Minneapolis, Minnesota 55420 USA • 612-884-4051 Fax 612-884-0043

USE READER SERVICE CARD FOR MORE INFO

Show your noisy computer the door.



The TSE Series works like an extension cord for your Macintosh computer, allowing you to place your computer up to 500 feet away from your monitor, keyboard & mouse. Virtually eliminating all computer fan noise and CPU clutter from your studio.

- Maintains Highest Resolution Video.
- Keyboard & Trackball Extension to 1,000"
- Two Users can Work at the Same Time at Local & Remote Locations.

- Supports Two Monitors Side by Side.
- Ideal for Avid, Digidesign, Sonic Solution, Studer, Dawn & other Digital Workstations.
- Simple Telephone & RGB Cables used for Extension.
- Supports any Make & Size of RGB Monitor with S or H & V Type Sync.
- Rackmounting version available.
- Installs in Minutes.



SEE US AT AES BOOTH # 955

GEFEN SYSTEMS 6261 VARIEL AVENUE SUITE C, WOODLAND HILLS CA 91367

PHONE: 800-545-6900 FAX: 818-884-3108 INTERNET <http://www.gefen.com>

USE READER SERVICE CARD FOR MORE INFO



Bach's Goldberg Variations by Glenn Gould...



...and (with less variation) by QSi.

When the Canadian Broadcasting Corporation discovered acetate transcription discs containing a rare 1954 Glenn Gould recording of Bach's Goldberg Variations, they made one call to QSi. For such an incomparable performance, the CBC chose unparalleled service—the audio restoration facility at QSi. Whether your project requires major archival transcription, or merely the rescue of a critical track of music or dialogue, call QSi—where quality never varies.

Compact Disc Mastering • Historical Restoration
Emergency Audio Recovery • Audio Forensics



Quintessential Sound, Inc.
1600 Broadway/Suite 610
New York, New York 10019-7485
212 586 4200
FAX: 212 586 5339

around, and so it was easier to send sound to the video assist by the Radio Station than run out a cable. During the 'Requiem' scene, there is a funeral procession that stretches for about 500 yards. We set up four playback stations along the route, each with four Bose 822 cabs and a Citronic 1,200-watt amplifier. The two nearest to us were fed with cable, but the furthest two we fed by Radio Stations, and they worked very well."

The advantages of a hard disk replay system were also demonstrated in the same scene. "The 'Requiem' for the funeral scene lasts one minute, 40 seconds, but it takes far longer to move several thousand people along the procession," says Weston. "We were able to instantly loop the music to create the right length for the shooting, even though it will be shorter in the movie."

There were a couple of playback scenes where the SADiE wasn't used. It was decided not to use it in a bus traveling around the streets, not because of the powering requirements but because of fears that the computer might not survive being violently bounced around. In such cases, playback was from 1/2-inch tapes, which had been compiled on the SADiE to cover most eventualities.

From the initial brief that there would just be just a few lines of dialog, much changed, as did the requirement to record live vocals. It was originally planned that just two songs would be shot with live vocals from Madonna—the epic final scene from the Casa Rosada balcony and the death scene. Eventually, far more was recorded live, either with "silent playback" using the Radio Stations or induction loop, or sung totally unaccompanied. In one case, musical director David Caddack played electric piano on the set following the live vocal. This was fed DI to the Soundcraft mixer and then to the Radio Station and Madonna as "silent playback," leaving an option for the orchestra to be overdubbed at a later stage.

Because of the importance of the vocals, a number of mics were tried out. The basic location mics were all Sennheiser MKH Series—70, 60, 50 and a 40. A Neumann U47 was tried for Madonna, and it proved a better-sounding singing mic, with a rounder, warmer sound. However, in the quieter scenes, the U47 picked up a lot of camera noise and was unusable. The crew therefore returned to using an MKH50 for all vocals, which they found good at minimizing noise while still effective as a quality vocal mic. A few songs



You're on the right track.

Now add 600 more.

If you've bought one or more ADAT's or DA-88s, you've made a smart investment in the digital future. But there's so much more that can be done with the digital medium. **The Roland DM-800 disk-based Digital Audio Workstation** can exponentially increase the power of an ADAT-based recording system. Or, if you're just getting started, you can skip tape and plunge right into the DM-800. Either way, you'll get creative freedom far beyond the reach of tape-based digital.

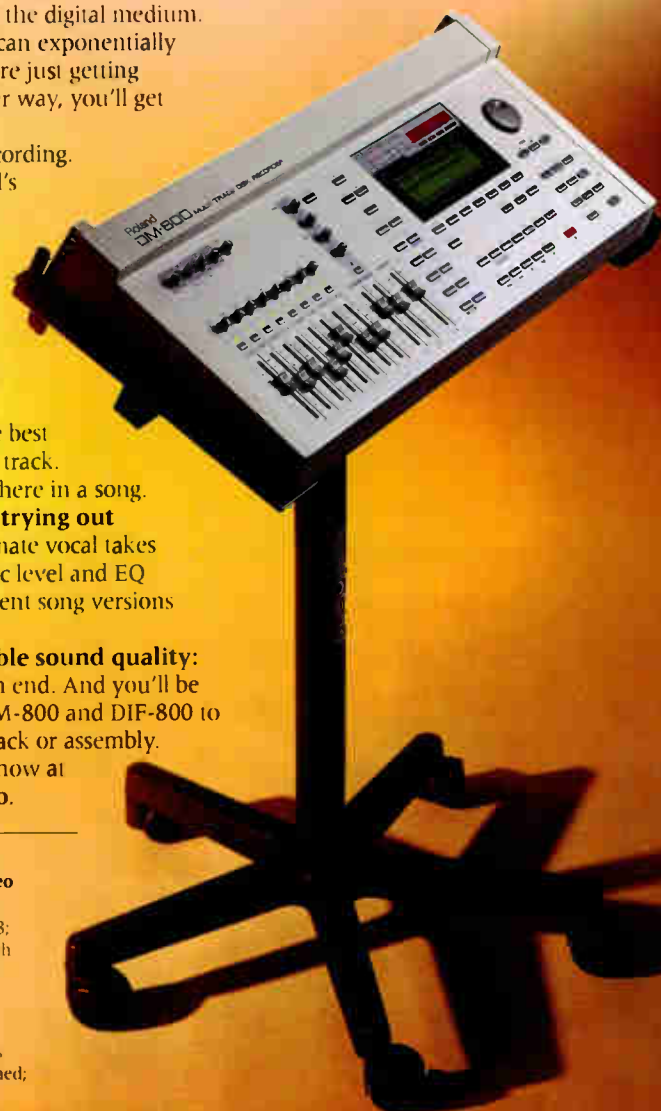
ADATs have opened the door to high-quality 8-track digital recording. **The DM-800 opens the doors of your creativity.** Using Roland's DIF-800 interface, you can digitally transfer any of your ADAT tracks to the DM-800 for some serious editing power. Fix the pitch of notes or cut out a breath in a vocal track. **All edits are completely non-destructive**, so you can experiment without worry.

Loop your best drum part, or use time compression to correct the timing of a drum fill. Or, you can sync the DM-800 via SMPTE or a MIDI sequencer. **Synchronization is instant. A hundred alternate takes can be stored for any given track.** Choose the best parts from up to 600 total takes and then edit them into one killer track. Using a tempo map, compiled and edited parts can be flown anywhere in a song.

Imagine making 10 digital copies of your song and then trying out different arrangements: extra choruses, different endings, alternate vocal takes with different lyrics. Then prepare for mastering using the dynamic level and EQ automation. The built-in video output lets you keep track of different song versions on a large screen.

You'll get all this creative freedom, plus the DM-800's **incredible sound quality:** wide imaging, warmth and punchiness, and a well-defined bottom end. And you'll be ready to do film and video projects, too. Just bring the portable DM-800 and DIF-800 to the video house and use an RS-422 to control your audio for layback or assembly.

Visit your Roland dealer for a trip on the fast track. Or call us now at (213) 685-5141, ext. 756, for your free DM-800 promotional video.



Powerful, Non-Destructive Editor
600 Virtual Tracks; Time Compression and Pitch Correction. Cut, Copy, Erase, Move; Waveforms, Preview and Scrub Preview for fast, accurate editing

Instant, Accurate Synchronization
Reads and writes all SMPTE formats with fully resolved frame-edge lock; MTC, SPP, MMC sync capable

Storage and Backup Options
2 internal 540-Meg drives; Record to 1 Gig, Iomega™ Jaz™ drives; Backup to audio DAT, data DAT, Jaz™ drives, etc.

Full MIDI Implementation
Trigger mode for instant firing of audio; Tempo maps for SPP sync and fast editing by bars and beats and 960 ticks; MIDI punch in and out

DIF-800 Interface Option for Modular Digital Multi-tracks and Video
8 tracks of digital audio transfer and sample-accurate sync with ADAT, DA-88; Video outs; RS-422 as master or slave with capable video decks and video editors

Dedicated Hardware Platform
Exceptional editing and syncing speed; Completely stable; Easy to learn; Weighs only 12 pounds; Completely self-contained; 18-bit AD/DA conversion with 24-bit internal processing

Multi-channel Digital Mixing
Full onboard dynamic and snapshot automation of all mixer functions; 16 bands of EQ, 12 channels of digital mixing; Full-featured digital patch bay with direct outs, stereo aux busses and digital bouncing

Roland

DM-800 Digital Audio Workstation

SEE US AT AES BOOTH #701

Roland Corporation U.S., 7200 Dominion Circle, Los Angeles, CA 90040 (213) 685-5141 Roland Canada Music Ltd., 5480 Parkwood Way, Richmond, B.C. V6V 2M1 (604) 276-9676
COMPUERVE™: GO ROLAND Fax-Back Information: (213) 685-5141, ext. 271 <http://www.rolandus.com>

All trademarks are registered by their respective companies.



Only Dreamhire can offer the following:

The largest inventory and most extensive selection of expertly maintained, fully updated professional audio and midi equipment for rental on the planet.

The friendliest, no-nonsense personnel in the business.

The flexibility and resources to be able to tailor a quote to suit your demanding needs and tight budget.

Three worldwide 24 hour locations

New York City: 212-691-5544 / 800-234-7536 (outside NYC)

Nashville, Tennessee: 615-321-5544

London, UK: 081-451-5544

Call now for your copy of our rate card and/or our latest list of ex-rental equipment available for purchase.

USE READER SERVICE CARD FOR MORE INFO



• SYSTEM DESIGN • INSTALLATION
• FABRICATION • PRO AUDIO SALES
• SERVICE AND REPAIR • PARTS

• POST PRODUCTION • FILM
• RECORDING STUDIOS • BROADCAST
• SOUND REINFORCEMENT

DCE

DAVID CARROLL ELECTRONICS, INC
3219 PIERCE ST., RICHMOND, CA 94804
510/528-8054 • FAX: 510/526-1982

needed the use of radio mics hidden in hair or on costumes; either Trams or Sanken COS11s were used to feed Audio RMS2000 UHF transmitters.

Weston is confident that many of the live vocals will turn up on the soundtrack. "There is no way that you can match the sound from the studio floor or the location with that of the recording studio, even using the same mics," he says. "The tracks we did live certainly had a lot more emotion and performance. They also had the location ambience, which Alan Parker prefers to the very up-front vocal sound sometimes used in musicals. But the decision will be made in post-production."

The grand finale. "Don't Cry For Me Argentina," was a major production on all levels. Five thousand extras packed the square in front of the Casa Rosada as Madonna appeared on a balcony above. Wearing a very tight dress, Madonna was understandably reluctant to use the Radio Station pack. Instead, she wore an induction receiver, and a monitor mix was sent via Radio Station to an amp on the balcony, which in turn powered an induction loop at her feet. In other takes, a pair of speakers at Madonna's feet provided playback cues. In all, 14 speakers were used to bounce sound off the buildings in the square for the nighttime scene.

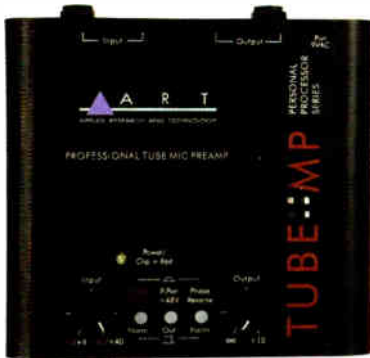
Daniel says that the Argentinean crowd was remarkable. "It was more like having 5,000 actors than extras. Because many of them had lived this story, it was very real to them and they reacted accordingly. Our local drivers were crying, and the hard-bitten crew weren't far behind. It was just incredibly moving."

After Argentina, the production moved to Hungary for further location work and interiors. Budapest has a 1950s character that Buenos Aires has largely lost, requiring only the addition of a few palm trees. The final stages of shooting were handled at Shepperton Studios in south West London.

At the completion of shooting, sound editor Eddy Joseph and music editor Graham Sutton were appointed to pick up from where the production crew finished. While a complex task still remained, with much re-recording, overdubbing and synching of the music and songs, the early reports from the editors confirm that the care taken over the use of timecode and 'Speaking Clix' has paid off and is working well. ■

Keith Spencer-Allen is a freelance writer based in London.

Tube Mic Preamps by A R T: Legends in the Making



"At \$149.00, the A R T TUBE MP is a rockin' good deal. Every recordist working with an MDM or hard-disk recorder should buy this piece of equipment immediately. Trust me, you'll find tons of uses for the TUBE MP!"

-Michael Molenda, as reviewed in the February, 1996 issue of *Electronic Musician*

"The violin player is the kind of guy who likes playing his violin through a vintage tube guitar amplifier. The DUAL MP really warms up his violin sound and fills out the bottom end. I also use it for other instruments, such as acoustic guitar."

-John Armstrong, Engineer-Travis Tritt

Professional.

"The PRO MPA has a friendly face and sound that is both new and old at once. Old as in nostalgically warm and new as in ergonomically clean, quiet and versatile; and most importantly very usable."

-Gino Vannelli, renowned vocal artist



No Compromises.

"I haven't mixed a show without the PRO MPA yet!"

-David Norman, Front of House Sound -
Neville Brothers



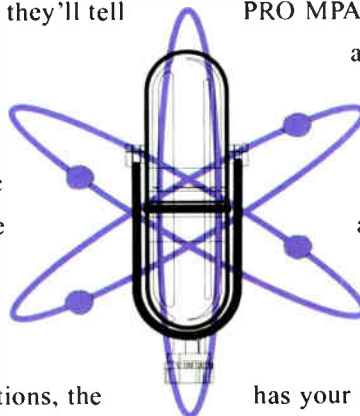
"The Tube Mic Pre Family from A R T is absolutely smokin'! Affordable and rugged. Way, way better than what I've been using."

-John Mattick, Keyboardist currently performing and touring with Alabama

Choose Your Sound Solution.

SEE US AT AES BOOTH # 238

Ask anybody in the recording industry, and they'll tell you that A R T Tube Mic Preamps have *the* hot sound. ¶Our original TUBE MP continues to astound professionals and hobbyists alike with affordable, classic tube sounds. The DUAL MP delivers the same award-nominated sound in a rack-mountable stereo package. With full metering and variable high pass filter for critical recording and listening applications, the



PRO MPA has become the tool of choice in studios and on tour everywhere. ¶A R T Tube Mic Preamps don't need to be unjustifiably expensive in order to be considered professional. Nor do they need to be old and rusty to be considered classic. From the plug-and-play personality of the TUBE MP to the studio-grade functionality of the PRO MPA, A R T has your classic sound solution.

A R T
APPLIED RESEARCH AND TECHNOLOGY

APPLIED RESEARCH AND TECHNOLOGY, INC., 215 TREMONT STREET, ROCHESTER, NY 14608
Phone 716/436-2720, Fax 716/436-3942
<http://www.artroch.com>, artroch@cis.compuserve.com, artroch@aol.com

For complete information on our Tube Mic Preamp family, please contact A R T at the above address, Department F127. Please list the publication in which you saw this advertisement.

USE READER SERVICE CARD FOR MORE INFO

World Radio History

Realizing The Music for

Shine

by Larry Blake

it's hard to think of a well-known classical composer whose life has not been portrayed in a theatrical film. The reasons seem obvious: What makes composers special is their ability to communicate through music, and no other art form has film sound's ability to bring music to life with such dramatic effect.

Most film music biographies look at famous composers, and the audience brings their preconceptions and (presumably) affection for the music. In addition, the life stories are usually known by many viewers, so they usually have some idea of what they're in for. A film bio of a virtually unknown performer would seem to be a tall order indeed, unless the film synergistically uses the music and the subject's life to a cohesive emotional end. *Shine*, due out in the States this month, fits the bill.



David Hirschfelder

PHOTO: MICHAEL LAURIE



Ricky Edwards

PHOTO: MICHAEL LAURIE

Shine follows the life of Australian concert pianist David Helfgott, a prodigy whose career was cut short when he had a nervous breakdown at the age of 22 after performing Rachmaninof's *Piano Concerto No. 3* at the concerto medal competition at the Royal College of Music in London, in front of a packed house. He collapsed after working himself into a frenzy during the performance and spent the next 12 years in various mental institutions.

By this time, he was nearly forgotten, even in his native country. But his career was revived when he began playing a regular gig at a restaurant in Perth. In 1986, Australian film director Scott Hicks saw Helfgott perform and began a ten-year odyssey to bring to the screen the life of a "child prodigy who never grew up."



Melbourne-based composer David Hirschfelder was approached three years ago by Hicks to be the musical director for *Shine*—not only to write the underscore, but also to handle the artistic and technical challenge of bringing Helfgott's playing to the screen. Hirschfelder, who is best known in the U.S. for his work on *Strictly Ballroom*,

collaborated with assistant music director Ricky Edwards, whose responsibilities included, in addition to all music editing, playing the piano on several pieces and conducting the orchestra during the recording sessions.

Hirschfelder met Helfgott in late 1991 at a recital at his house two hours north of Sydney. "To work with him as an

artist was a challenge because I couldn't sit down and have an analytical discussion. You have to jump into his zany, poetic way of communicating, like turning words into little phrases. We would talk about the pedaling of a piece, and he would say, "Should I clean this here, should I clean this here?" I worked out that he meant double-pedaling (or

POST-PRODUCTION AT SOUNDFIRM

The sound editing, Foley recording, dialog editing and all re-recording were done at the Melbourne facilities of Soundfirm Pty Ltd., the prominent Australian post-production company with studios in Sydney and Melbourne. The great majority of well-known Australian films of the past 13 years have been finished at Soundfirm, including *Babe*, *Mad Max II (The Road Warrior in the U.S.)*, *Dead Calm*, "Croccodile" *Dundee*, *Strictly Ballroom* and *Priscilla, Queen of the Desert*. Soundfirm is headed in Melbourne by re-recording mixer Roger Savage, with the Sydney offices run by mixer Ian McLoughlin.

Sound editing at Soundfirm is on their proprietary EdiTracker audio workstation, which the company developed in the late '80s and has used on all of their films since *Lorenzo's Oil* in 1990. Running on a 386-based PC, EdiTracker uses a touchscreen for primary editing control. Although the company is discontinuing further development of EdiTracker (and scouting around for a system to replace it in their Melbourne and Sydney facilities), Soundfirm has continued to develop filmmaking technology for its clients. Prominent among them was a hard disk playback system originally designed to help Kennedy-Miller Films in shooting *Babe* in 1994. Recording a feed from the film camera's video tap, EdiAssist allows a director to preview the effect of shooting off-speed (from the standard 24 or 25 frames per second). A rehearsal can be played back as if it had been shot at speeds from 1 to 500 frames per second.

Shine was handled by just two

sound editors at Soundfirm, Gareth Vanderhope cutting sound effects, and Livia Ruzic editing dialog and ADR. There was some discussion of sampling mechanical sounds of fingers hitting keys and feet pressing pedals for Vanderhope, to be triggered by Ricky Edwards' final edited sequences. Although time constraints

board also has 36 premix returns.

Eight DA-88s played back the pre-mixes and music mixes, recording them onto five 4-track stems, with dialog, music, hard effects, atmospheres (aka backgrounds in the U.S.) and Foley kept separate. (The stems at Soundfirm are recorded on a 24-track, 2-inch with Dolby SR.) This extended

level of stem separation has the advantage of allowing picture changes to be accommodated easily after a final mix because of the separation of continuous backgrounds, and also helps the creation of the stereo music and effects elements because the Foley has been kept separate of sound effects and can be raised as needed without bringing up the rest of the sound effects stem with it.

The only use of mag film in the standard post sound process as practiced at Soundfirm is for printmasters, and even that was not used for the primary Dolby SR stereo optical/Dolby Digital release, as both of those masters were recorded onto DA-88.

Shine was shot at the world standard projection speed of 24 frames per second, although all post-production picture and sound editing was done electronically using the Australian PAL standard, which runs at 25 fps. Although shooting 25 fps film for PAL television release simplifies the film-to-video translation issue, the non-integer 24/25 relationship is a frequent grief factor in Australia (and, indeed, in all countries with 25-frame PAL or SECAM television standards or their variants).

—Larry Blake



PHOTO: MICHAEL LAURE

Re-recording mixer Roger Savage (left) and Gareth Vanderhope at the Harrison SeriesTwelve, with MPC monitoring section

ended up precluding this idea, Vanderhope was able to do something of this nature during the solo piano passages of Rachmaninoff's *Piano Concerto No. 3* when he did sync Foley using recordings of fingers hitting keys. (This scene is reminiscent of another bravura piece of sound editing and mixing: the premiere performance of Beethoven's *Symphony No. 9* in the film *Immortal Beloved*.)

All edited units were delivered to and premixed on the DTRS modular digital multitrack format using Tascam DA-88 machines. Soundfirm's primary Melbourne re-recording stage has a 48-input Harrison SeriesTwelve console with the monitoring section from the Harrison MPC console. The

Nobody Does Digital Like Denon



Why trust your CD playback products to anyone but Denon? Denon has been a leader in digital audio technology since 1972 with the introduction of the world's first PCM digital recorder. In 1975, Denon demonstrated the first PCM optical disc player while in 1982, Denon pressed the first commercially available Compact Disc.

Today, Denon offers the Industry's most comprehensive family of professional CD players, CD Jukeboxes and CD-ROM Jukeboxes. From broadcast and post-production to fixed installation and mobile DJ, Denon has the right product for all your Compact Disc playback applications. That's why Denon is The First Name In Digital Audio.



DCM-340 5 CD Changer



DN-610F CD/Cassette Combi-Player



DN-2500F Double CD Player



DN-600F Single CD player



DN-650F Single CD Player



**DN-1400F 200 CD Changer
DRD-1400 200 CD-ROM Changer**



**DN-951 FA CD Cart Player
DN-961 FA CD Player**



DN-2000F MKII Double CD Player

DENON
The First Name In Digital Audio

Denon Electronics Division of Denon Corporation (USA), 222 New Rd Parsippany, NJ 07054 (201) 575-7810

World Radio History
USE READER SERVICE CARD FOR MORE INFO

SEE US AT AES BOOTH # 941

clutch pedaling) to 'cleanse' clusters of notes without totally destroying them. It was quite quaint tuning into his mode of expression." Edwards says Helfgott could often be heard saying "gotta concentrate, a lot of traffic here, a lot of traffic here," which of course meant that there were a lot of notes!

This talking while playing is not just something that Helfgott did for fellow musicians Hirschfelder and Edwards; his constant vocalizations are a unique signature of his recitals. It's part of the package that you expect when you hear and see him perform live, though it reads less well on recordings, and in most instances would have rendered them useless for purposes of the film. Hirschfelder says that you would "stumble his performance if you interfere with his natural personality."

This problem, hand in hand with the assumption that the recordings heard in the film had to be actual performances by Helfgott, led Hirschfelder to look for a modern "player piano"—the Yamaha Disklavier system, specifically—as the way of "recording" Helfgott's playing without having to deal with the vocal problems. Hirschfelder says they could record his key velocities and pedal works in a casual, relaxed atmosphere, then edit them later "in a MIDI sense, as opposed to in an audio sense."

The other advantage, which was realized in post-production, was that if the actors' performances were a little bit out of sync, Edwards was able to shift specific notes, something that just isn't possible with a live recording. From the beginning, Edwards says, Hicks sold the film on the basis that the "actors would appear to be playing the piano and there would be no questions asked. It had to look believable, and it also had to be a valid audio document of Helfgott's playing. There had to be integrity in the process. David and I were responsible for this. And to have [Helfgott] play the piano [heard] in the film is the best thing to do. If you want it to be able to sync up to actors' idiosyncrasies in their miming, there *had* to be editing."

Hirschfelder says that he virtually didn't use anything from his first two sessions with Helfgott. "Like all artists, he's conscious of the 'red light' going on," he says. "Even though there were no microphones, he was aware that this was being documented. It took awhile for him to be free in his delivery." These initial sessions were with an "in-house" invited audience so he could get a sense of a live performance.

"In the end, we worked out that the best way to get him to perform was to make it flow as part of the chaos of everyday life, instead of being too self-conscious and focused," Edwards says. "Using the digital piano technology in this manner had the added benefit of allowing them to get through the extensive repertory without having to be at the further mercy (and pressure) of setting up a dozen recording sessions, with the worry that Helfgott might not be up to performing that day. Hirschfelder was thrilled that they "could plug in the PowerBook any time, any day and within five minutes, without an engineer, we could do the repertoire. Ricky could then spend a lot of time choosing and compiling into continuous pieces the performances we wanted to go with."

The Disklavier has solenoid motors on the mechanical parts of the piano, including keys and pedals, and records a performance as a MIDI file (there are also hammers striking strings, and in all other respects it is a regular piano). Initially, they used an upright Disklavier, which although small by piano standards, was still formidable to move around. Hirschfelder and Edwards were happy to find that the Yamaha Clavinova digital piano (which has just a heavy-weighted keyboard) was file-compatible with the Disklavier. The advantages of using the Clavinova were legion: It was designed for domestic

use and can be carried easily by two people, it has no strings and therefore doesn't require tuning, and it was inexpensive enough that they could leave one with Helfgott so that he could become comfortable with it.

Hirschfelder says that because of the Clavinova, they were able to get some great "recordings" of Helfgott in a hotel room when he was visiting Melbourne. "I remember one session when he was playing the *Campanella* [by Liszt] while listening to Beethoven's "Pastoral" symphony on the radio. As he was playing—impeccably, I might add—he was commenting on the oboe line in the Beethoven!"

The set-piece sequence at the Royal College of Music, when Helfgott plays Rachmaninoff's *Piano Concerto No. 3* posed additional challenges because an orchestra had to be heard with Helfgott. In addition, there was the goal to have the orchestra disappear in the middle of the piece, leaving the piano on its own. You could then make the piano unnaturally loud to put yourself in his shoes. The best—and only—way to do this is to have the piano recorded separately.

"He was quite capable of not only playing it imaginatively without the orchestral accompaniment, he would be *singing* the orchestral accompaniment while he was playing it anyway," Hirschfelder says. "He'd be singing cello lines against what he was playing! We

THE SOUNDTRACK ALBUM

In contrast to the film, the soundtrack CD features the piano primarily in stereo, although sometimes it was in mono, according to Hirschfelder, deliberately to give the listener "a sense of each being a memory of a piano rather than a literal 'okay ladies and gentlemen, here's a recording of a piano.' Sometimes being in mono gave it a surreal quality. A couple of times, hopefully not to the point of distraction, we crossfaded or tried to 'morph' a mono piano sound into a stereo feeling. I took a little bit of artistic license on the soundtrack [CD] that I couldn't in the film because the film was focused on the young boy's performance."

One example of this is the Chopin *Polonaise in A Flat*, which begins with a performance by Ricky

Edwards that goes from a mono "humble piano" sound to a stereo recording of Helfgott made ten years ago on a concert grand.

The MIDI files edited in the film for sync purposes were almost always returned to their "best performance" state for the audio-only telling of the story. Because Letho was back in the U.S., Edwards recorded the new Disklavier outputs using a pair of Sanken microphones.

Mastering was accomplished in Melbourne by Michael Costa, who edited together the various sources (including sound effects provided by Soundfirm) in Pro Tools, utilizing the Waves Sound Designer II plugins, L1 Ultra-Maximizer Q10 EQ and C1 compressor. All in all, six days were spent on the mastering.

—Larry Blake

Dramatically Nearer to the Truth.

We release the subtlety and the power by removing the veil of distortion. What's uncovered is pure, open and unquestioned. Many will wonder how this was achieved. To appreciate its true value, however, you need only to experience it.

Introducing Exposé by KRK.
A.E.S., Los Angeles
November, 1996.

SEE US AT AES DEMO ROOM # 306



*Exposé*TM
Dynamic Expression
by KRK

Manufactured by KRK Systems, Inc.,
714-841-1600, Fax: 714-375-6496

Distributed by Group One, Ltd.,
West: 310-656-2521, East: 516-249-1399

USE READER SERVICE CARD FOR MORE INFO

World Radio History

ended up recording it in sections, and I was sort of cheering him on and conducting him, giving him a sense of urgency in his playing even though there was no orchestra there. He had to keep the momentum going even though he was the only player in the room. And in that last recording session, he was so swept up that it wouldn't have mattered if there was an orchestra there anyway. He was right there doing it."

The bulk of the sessions with Helfgott occurred over a three-month period in early 1995, in advance of shooting music scenes in London in early May. After the select pieces were edited, Hirschfelder created a synthesized orchestral accompaniment for the orchestra to mime to. These were mixed down to DAT with piano hard left and orchestra hard right, with click track count-ins.

Most of the time, though, playback was direct from Edwards' PowerBook, playing through a small tone generator that was fed to a portable powered speaker, creating what Hirschfelder calls a "Polaroid" of the final music. This way he could zero in on exactly the section that was needed to be shot. "The big problem with having [only] playback guide [recording] on the set is how it interferes with dialog, and if they want to use it, there can't be any [simultaneous] guide music."

Recording live dialog with music playback has historically been done with small earpieces fed by an induction loop around the room. Edwards says that, though they had discussed this, they could get around it more easily with his trusty PowerBook. "I could create a new file with music missing in the section where there would be dialog," he explains. "Thus you could have Cecil Parkes [Sir John Gielgud] go, 'Don't you just love those big fat chords!' [in the midst of the "Rach 3" cadenza sequence], and then the music would start up again" without interfering with the production dialog recording. This "while-U-wait" editing, as Hirschfelder calls it, gave Hicks flexibility to design the blocking of his shots on the spot.

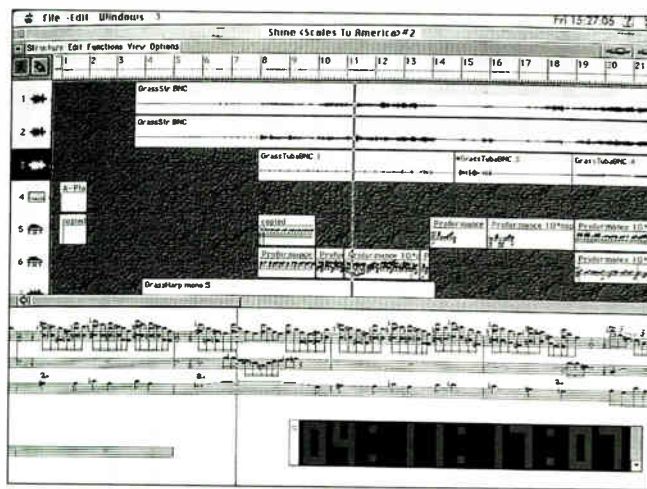
After the London shoot, there was a short break, so Edwards edited the initial recordings and prepared for the Australia sequences. Edwards was present whenever music was being performed and had another key role in the film:

teaching the actors how to play the piano authentically. Noah Taylor plays Helfgott up to the Rach 3 scene, while Geoffrey Rush plays him as an adult, from when the film begins in 1984. While Taylor used a hand double for much of his playing, Rush memorized all of his playing, aided in large part by five years of piano lessons as a child and months of work with Edwards.

In all instances, careful planning between Hicks, Edwards and the actors resulted in their memorizing only what would be needed for shooting. On the set, it was sometimes necessary for Edwards to give count-in marks to the director of photography, Geoffrey Simpson (who also operated the camera), and the dolly grips. Edwards could then start the sequence on his PowerBook so that by the time a dolly move would reveal the actor's hands, they would be in a rehearsed part of the cue.

POST-PRODUCTION

As soon as the file was edited, Edwards would create a timecode-stamped recording onto DAT (using 25-frame



Screen capture from Emagic Logic Audio

code; see sidebar), via a Clavinova, from his PowerBook. This master was then used by the picture editor, Pip Karmel, to cut against on a Lightworks nonlinear system. Edwards sat in with Karmel, giving suggestions about what could be corrected either by cutting away sooner or by using a different take. Or, if necessary, he could update his master file and make corrections on specific notes.

Because the master MIDI sequence was obeying the same timecode as the track in the Lightworks, they could eventually record various piano takes—in tune, out of tune, grand piano, upright piano—and cut among them.

The recording and editing of Helf-

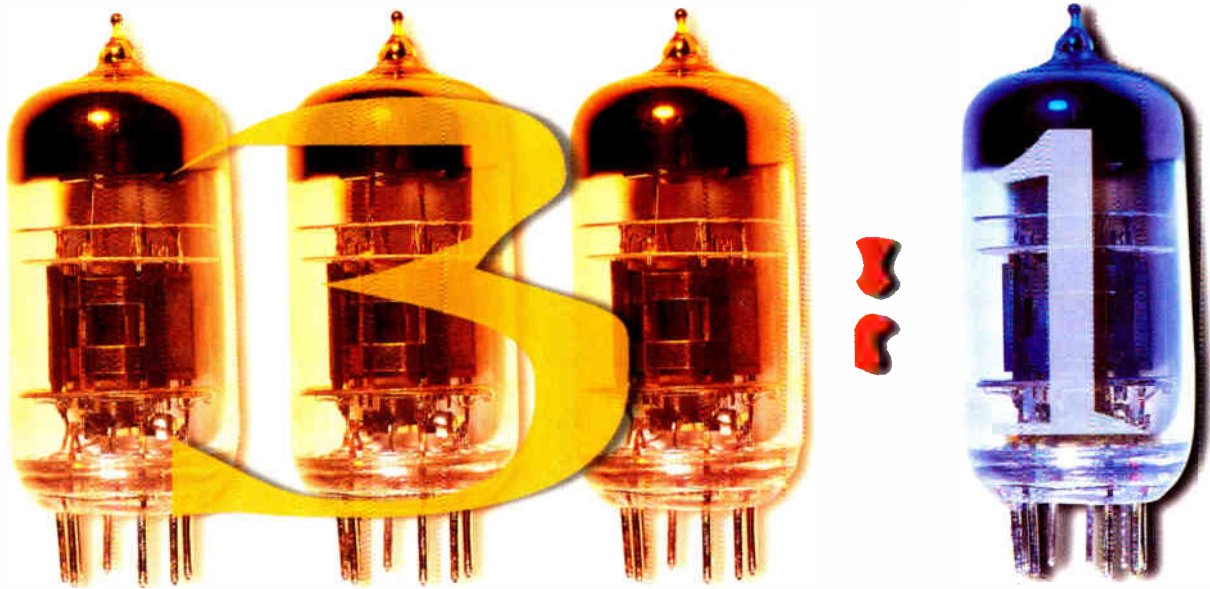
gott's material made use of Opcode StudioVision in conjunction with Studio 4 and 5 hardware, while Hirschfelder mainly used Emagic Logic Audio software in creating his underscore and the orchestrations for the existing classical pieces, such as the Beethoven and Vivaldi, which were transcribed from recordings. Indeed, Hirschfelder credited the music copyist Schwarz as Music Notation Editor "because he actually realized the score in written form and had input into how it should be done." Hirschfelder, Edwards and Schwarz used e-mail to circulate MIDI files among themselves. While admitting to being stary-eyed over such slick use of the Internet, they also found that when deadlines were coming down, the immediacy was of real value.

In spite of the elaborate and integral use of MIDI sequencing in the film, all music heard in the final movie was recorded acoustically. Edwards says that "in this day and age in Australia, this is a rare thing." Budgets being what they are (especially for \$6-million films, in Australian dollars, like *Shine*), there would be no way to rehearse an artist and orchestra together to the degree necessary to achieve their desired level of precision.

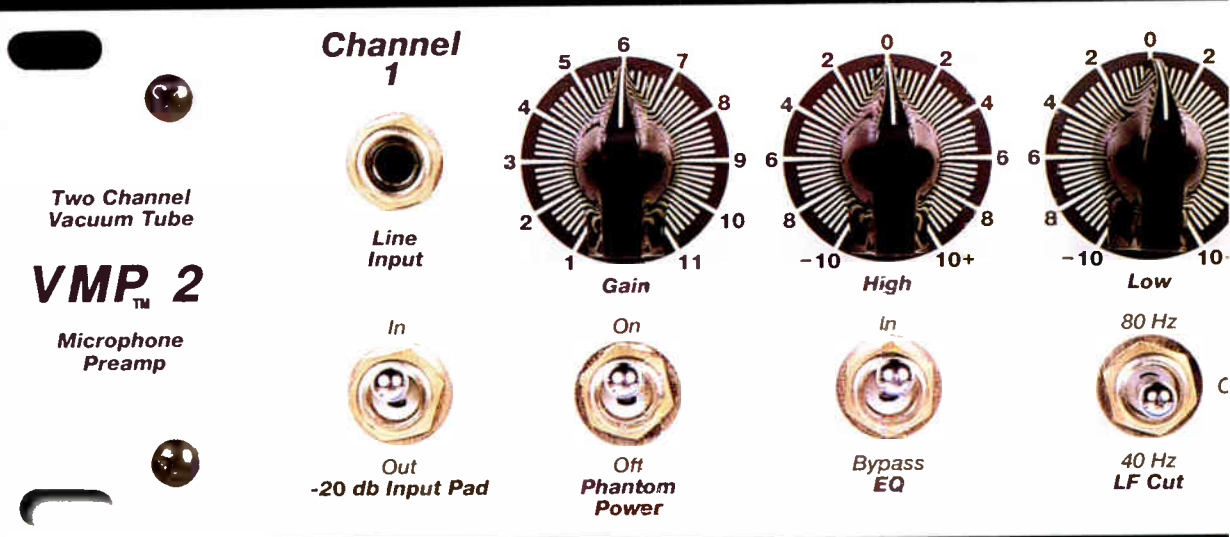
In the end, they had to make a formal open-microphone recording of the Disklavier playing back the final MIDI edits; most of these sessions took place at Yamaha Music's Melbourne offices. (Also recorded during these sessions were the piano parts of Hirschfelder's underscore; he had performed them in his home studio on a Korg KX-88 keyboard.) In some instances, they detuned an upright Disklavier to mimic a honky-tonk piano. "We were able to experiment with different levels of detuning without the pianist sitting around having to play it over and over again. We could change sounds like a guitar player changing settings on their amps." *Shine* is certainly one of the few films ever to employ a "piano detuner."

Michael Letho recorded the piano using a combination of either Massenburg or Mackie 1202 microphone preamps and a Calrec Soundfield microphone. "Michael is used to recording with large Neve or SSL consoles and 48-track digital machines, yet he's comfortable in doing projects like this with four different ADATs with differ-

Odds are, we'll give you more of that
warm tube sound



The
**VMP™
2** Two
Channel
Vacuum
Tube
preamp



The VMP™ 2 gives you three tubes for every one found in our competitors' preamps. While others create the illusion of being a tube preamp, in reality most only provide a single tube in the front end, leaving a cold transistor back end to do all the work. The VMP-2's all-tube preamp gives you true tube texture because we

use tubes EXCLUSIVELY throughout the signal path. And high-voltage power rails utilize 100% of each tube's energy for extended warmth—something you can't experience with a preamp powered by a wall wart. Many consider the VMP-2 a two-for-one product because of the built-in all-tube EQ, which allows the artist to deliver crisp highs or robust lows to any track or mix. Odds are, you'll love the VMP-2: the vacuum-tube power tool for the professional and the professional-at-heart.

PEAVEY
AUDIO MEDIA RESEARCH™

SEE US AT AES BOOTH # 629

World Radio History
USE READER SERVICE CARD FOR MORE INFO

LEARN AUDIO RECORDING

The Conservatory of Recording Arts & Sciences can teach you the skills you need to become a successful Recording Engineer. You will receive 22 weeks of instruction by Gold and Platinum Award winning professionals. After our program of study and a real world internship, you will be prepared to make your own mark in the recording industry. Of course, financial aid is available to qualified students. To begin an exciting career, call us today!



Conservatory of Recording Arts & Sciences

1-800-562-6383

2300 East Broadway Rd. • Tempe, AZ 85282
Accredited by the Accrediting Commission
of Career Schools and Colleges of Technology

CONSERVATORY OF
Recording Arts & Sciences

USE READER SERVICE CARD FOR MORE INFO

SONEX™ Acoustic Treatments.



SONEX FIBER-FREE acoustic treatments now available in polyurethane and willtec® Class 1 Fire-rated materials. Call today to learn more about the sound qualities of SONEX.

illbruck
1-800-662-0032

ent software versions. He's not an audio snob in any way," Edwards says.

There are a few instances where old recordings were used in the film (and soundtrack album) because, Hirschfelder says, "They sound wonderful and have a great spirit about them."

The recording sessions for the non-piano parts of the score (both underscore and existing classical music) were done in sections, with the strings recorded separately. Hirschfelder chose this segmented approach because of the way he wrote the score. "There were a lot more strings on their own than there were woodwinds and brass," he says. "But most of my underscore was with strings and piano—something that was fairly simple. I'm sorta strange because I developed in the '70s and '80s multitrack school, and I like recording things in layers and wanted to experiment putting together a classical sound but in a multitrack way. I was surprised at how well it worked. It certainly wasn't any easier."

Edwards believes that recording in sections effectively gave them more studio time because it allowed them to focus on the strings and, perhaps most importantly, get more things done within their budget constraints. There was very little rehearsal time, and every minute of the recording session counted, so Hirschfelder felt that by not having to worry about the different sections of the orchestra interacting, they would have spent more time in the long run. "I wanted to nail each layer separately and get it as controlled as possible."

The strings were recorded by Robin Gray at Allan Eaton Sound in Melbourne to two ADATs. (The other recording engineers for the film were David Williams and Adam Rhodes.) On the first 8-track were main LCR overhead mics, plus spot mics for violin 1, violin 2, viola, cello, bass. A second tape, with the brass, choir, harpsichord and final woodwinds was recorded at a warehouse studio built for the film, housing equipment pooled from Edwards and Hirschfelder stock, using two Mackie 24-8 consoles and ADATs.

Before all live recording sessions, they created a tape with click track, guide woodwinds created by a synthesizer (so that the string players had woodwind components to listen to if they wished) and guide piano. The click track for the orchestra to play to was created by Edwards in Opcode Vision and then sampled into SampleCell. Hirschfelder says with a laugh that they



if horns are made of brass,



and guitars are made of wood,



then how come they always sound like plastic?

You've spent countless hours working to get your mix to sound right only to have the life squeezed out of it when you master for CD. Well, not any more. Now you can preserve the depth and emotion of your performance by mastering with the remarkable new High Definition Compatible Digital[®] process. Call us for more information, or ask a mastering engineer who has it. And show everyone what you're really made of. Available at Future Disc • Gateway Mastering • Georgetown Masters • Masterdisk • Masterfonics • MasterMix • OceanView Digital • Sony Music Studios, NY • Sterling Sound

PACIFIC
MICROSONICS
HDCD

SEE US AT AES BOOTH # 256

World Radio History

High Definition Compatible Digital[®] are registered trademarks of Pacific Microsonics, Inc. (510) 644-2442 or www.hdcd.com

were "very goddamn serious about that click track. Sonically, it had more energy on the bottom end than the top, so there was minimal danger of headphone spill. This was particularly important for violinists who would have one headphone off; you wouldn't want it to be in the same register as the violins when they were playing softly." And Edwards is proud to note that none of the musicians ever complained about the clicks.

The score was mixed down by Letho from the ADATs to an 8-track Pro Tools system while monitoring through the Dolby 4:2:4 matrix. This mix would frequently be eight tracks wide, which would then be internally combined in Pro Tools when creating one of two Left/Center/Right/Center (LCRC) mixes that was transferred D-D to a Tascam DA-88 for the final mix at Soundfirm (see sidebar). Hirschfelder, Edwards and Letho settled on this LCRC/LCRC format for the flexibility. In most instances, the two groups allowed the standard checkerboarding of overlapped or near-adjacent music cues, especially when the cue would be a transition between source and underscore that would require very dif-

ferent handling in the mix. In some instances, "flexibility" would mean that sound effects Hirschfelder had created (such as the subjective sounds in the Rach 3 sequence) would be on the second 4-track set to allow Hicks and re-recording mixer Roger Savage the ability to use them in any fashion, including not at all.

The second set was helpful in giving Savage separate control over the piano and the orchestra, most prominently in the Rach 3 scene. Hirschfelder says purists might be bothered during the instances when the piano is louder than the orchestra. "But it was quite effective." He also says that Savage had the ability to give the piano a separate reverb space from the orchestra without muddying up the latter.

Mix readers might be surprised to read that after all the trouble taken with the performance, editing and recording of the piano, it was almost always in mono in the final theatrical music mix. For the Rach 3 cadenza sequence at the Royal Academy of Music, there were three tracks of pianos: a detuned upright, a large concert grand and a smaller grand. This gave Savage the ability to crossfade

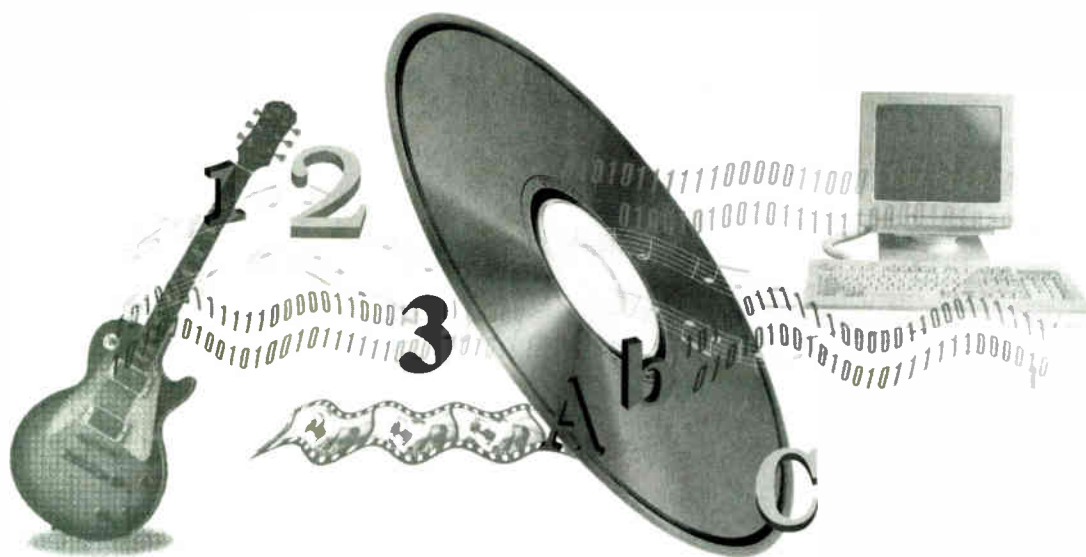
from one piano sound to the other, depending on the director's preference. If Hicks wanted to, he could stay on the detuned upright piano for the whole cue, matching the image. Or if at the final mix it was decided to take poetic license and have one of the grand pianos all the way through, that was an option. (In the cadenza, they took Hirschfelder's and Edwards' suggestion and crossfaded among all three.)

Hirschfelder also notes that stereo recordings are "hit and miss" with regard to the 4:2:4 Dolby Stereo matrix. "Sometimes you get voodoo and it's magic, and sometimes it moves the focus of where the sound is. In those instances, we decided to do them in mono."

All creative aspects of filmmaking involve compromise at the mercy of technical and logical realities. The sound and music personnel who put together *Shine* were lucky in that the direction they were forced to go in—recording Helfgott's performances in MIDI—was also good for their art. ■

Larry Blake is a sound editor/re-recording mixer who writes a monthly "Sound for Film" column for Mix and contributes occasional features.

NORTHEASTERN DIGITAL



PROFESSIONAL
COMPACT DISC
PREMASTERING

AUDIO, CD-ROM, ENHANCED CD
Sonic Solutions, NoNoise, 1630, CD-R
508-481-9322 FAX 508-624-6437
<http://www.CDNDR.com>

USE READER SERVICE CARD FOR MORE INFO

Take the Classic Cure.

Get over those digital chills!

Freedman Electronics of Australia has created the RØDE Classic Valve (Tube) Studio Microphone.

For richness, warmth, and a remedy for the sonic blahs, seek out the RØDE Classic!

\$1799

RØDE is a trademark of Freedman Electronics.



The RØDE CLASSIC Features:

- A rare and costly **6072 tube**, first choice of the finest microphone craftsmen.
- **Full 1" Gold-Sputtered Dual Diaphragm Capsule**, in combination with 6072-based circuitry, ensuring a warmth of tone for pristine vocal recordings.
- **Nine polar response patterns and two Frequency selections for high-pass filter**, selected at the supplied external power supply. (30 feet away from the performer)
- **-10dB and -20dB pads**, selected at the power supply, allowing optimum performance at different sound pressure levels.
- **Gold Plated Tuchel connectors** to insure accurate noise-free signal transitions.
- Australian-made **10m (30') high-grade multi-core cable**, helping to eliminate RF and other unwanted signal contaminants.
- High quality **Jensen transformer**, for added cleanliness and accurate bass response.
- **Internal shock mounting system** for Capsule and Tube, helping eliminate low frequency rumbles and vibrations.
- **Custom Flight Case**
- **Hand-crafted** solid brass body, textured with fine glass bead blasting. A nickel finish provides lifelong durability.

D I S T R I B U T E D B Y



P.O. Box 4189
Santa Barbara CA 93140-4189
voice 805-962-6926
fax 805-962-3830

USE READER SERVICE CARD FOR MORE INFO

World Radio History

RØDE

SOUND FOR FILM

THE REAL
DIGITAL NAGRA

by Larry Blake

In the mid-'80s, there was much talk about how digital recording would take over film sound in all its forms: production, editing and re-recording. Well, it took ten years for the first serious inroads, and those have been in post-production, the area where there is the greatest potential for quality and productivity increases.

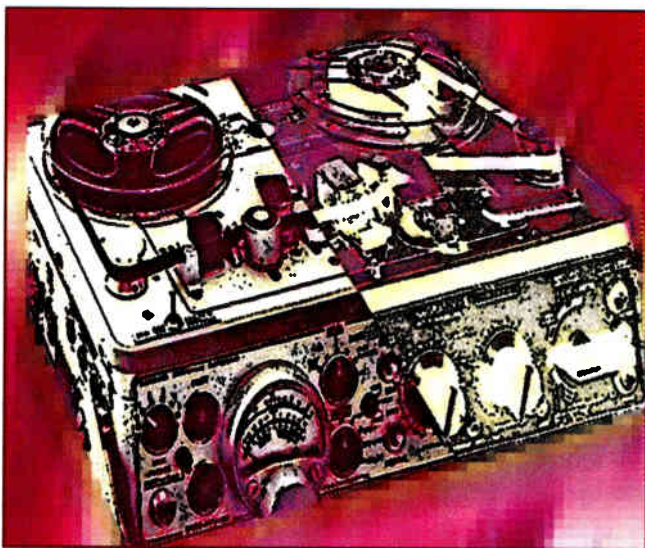
Digital recording has never really taken off in production—obliterating Nagras the same way workstations have 86'd Moviolas—for a number of reasons. DAT timecode is confusing at best, felony-inducing at worst. Timecode on DAT (and on MDM) is not the straightforward beast that it is with analog tape. In fact, it's been a minefield of problems. Six years ago, at the last AES convention held in Los Angeles, I moderated a workshop titled "R-DAT: The Good, the Bad and the Not-Yet." If it were held this year, I doubt the opinions expressed by those in attendance would be any different. For some, DAT remains a godsend, allowing high-quality portable or studio recording. For many others, it's not reliable or high-quality enough to commit precious masters to, an opinion shared by many production sound mixers (who still favor standard Nagras) and rock 'n' roll engineers (who lean to ½-inch tape). I guess my opinions and experiences cause me to straddle the

fence for once in my life: I love DAT for being a convenient way to record sound effects and nonsynchronous music, but I would never record the print master of a film onto DAT without extensive backup. And, even then, I'd be a little nervous.

Of course, DAT is not the only option available for digital recording for films and television. Many films have used MDMs in spite of the

over-the-shoulder-and-run-with-it portable.

I hope that the title of this column will not be taken as a slap at Kudelski S.A., the makers of Nagra recorders. I have never used their Nagra-D but can only imagine that its 20-bit sound quality is as good as one can get in the field today—that is, short of a Nagra IV-S TC with Dolby SR noise reduction, a combo that I am very fond of and



lack of a portable, DC-powered machine. And then there's the Nagra-D. Using ¼-inch tape to record up to four tracks of 20-bit audio (with today's converters), the D has been given glowing reviews for its sound quality. But, it has never taken off for a number of clear reasons, most obvious among them being that it costs a lot of money—more than \$20,000. And because it is a company-specific design, there's no competitive impetus for Nagra to reduce the price. You don't just need one machine in the field, you need another at the transfer bay during production and post-production. The final straw, I think, is that it's not throw-

which I think yields the highest-quality, *practical* recordings with today's technology. Yet for every time I hear myself saying that the IV-S/SR combination blows standard 16-bit recordings out of the water with respect to dynamic range, headroom and reliability, I know that ¼-inch analog tape—like its wider siblings, sprocketed and non, in post-production—will be in the rear-view mirror of technology by the year 2000. Why, you might ask, am I so sure that analog Nagras are going to go bye-bye within four years, when they have already outlived their predicted demise by ten years?

Well, the entire film and

—CONTINUED ON PAGE 172

FACILITY SPOTLIGHT

POST LOGIC STUDIOS, HOLLYWOOD

by Mel Lambert

Dick Voss, the recently appointed president at Post Logic Studios, Hollywood, is a direct, very candid kind of a guy: "We are the *right* size facility to handle audio post-production. Small facilities, with a couple of rooms, cannot offer a full range of audio-for-video service; the big guys let the client get lost in the traffic.

"We have a talented staff



PHOTO ELIZABETH ANNAS

of 40 editors, colorists, technicians and mix engineers who operate our video and audio post rooms," he adds. "We are not a factory, where it's 'raw materials in the front door and product out the back.' People—our clients and our crew—are very im-

portant to us. There is no rigid corporate culture, with layers of management. I believe in an open-door philosophy, where anybody can come and discuss anything that's on their mind.

"Our core business divides between commercials



Left: Mix engineer Fred Howard at the Avid AudioVision station in the flagship Studio A, with the SSL 6000 in the background. Above: president Dick Voss.

and promos during the day, and long-form episodic, telecine transfer and related sessions during the night." Post Logic's client base spans the entire entertainment community, including film studios, TV production com-

—CONTINUED ON PAGE 176

COMPOSER SPOTLIGHT

HUMMIE MANN

STEPPING UP THE COMPOSER LADDER

by David John Farinella

If Hummie Mann's sister had been playing with cars when he was four years old, chances are we'd find him under a Nova in the middle of Los Angeles instead of composing major motion picture soundtracks, conducting orchestras or arranging scores. When Mann was four years old, his older sister was taking piano lessons, and more than anything else he wanted to be like her. So, he took up piano for six months, until she got a post office kit with a bag and some letters. "When it came time for my piano lesson, I

said I didn't wanna have it; I wanted to play with the post office," he says now with a laugh.

While he gave up on piano then, a couple of years later he picked up a guitar, and by the age of 13 he was playing in pit orchestras and gigging professionally all over his native Montreal. He was introduced to a number of different styles and composers during his formative years, but it was at the Berklee College of Music that he first discovered film scoring. "It wasn't necessarily as much the excitement of actually writing to picture as much as it was an outlet for composing lots of different styles of music," he says of his early experiences. After graduating in 1976 and spending four years as a show doctor for a comedy troupe (he



PHOTO: PETER FIGEN

arranged music and assisted with the act), Mann found himself in Los Angeles with a reel and a couple of names.

The first name he called on was composer Alf

Clausen, who at the time was working as the musical director on *The Donny and Marie Show*. "We kinda hit it off pretty well, and for the next

—CONTINUED ON PAGE 178

DIGITAL DUBBERS

WHAT IS GOING ON WITH THIS "WAIT AND SEE" TECHNOLOGY?

by Mel Lambert

Just over a year ago, I reviewed the current state-of-the-technical-art in Digital Dubbers—random-access, hard disk replacements for 35mm playback units. At that time, I contacted several dozen of the companies said to be developing such hardware and wrote a feature article and table in the September 1995 *Mix*. Mention was also made of new systems scheduled to be unveiled at last year's New York AES convention, several of which were indeed shown in prototype form with promise of shipment of functional hardware within six to 12 months.

Well, time's up, and, with one or two notable exceptions, the promised "revolution" in playback technology for the film sound and audio post industry has, by and large, failed to materialize. The reasons, as I have been discovering while researching this follow-up analysis, are reasonably easy to isolate. For example, several manufacturers were rather rash in their R&D commitments and have yet to deliver a functional system. Post facilities, in turn, are adopting a wait-and-see philosophy, which, given the volatility of the workstation market (not to mention several casualties among the firms mentioned in last year's article) makes a great deal of sense.

At the heart of the current debate, as I determined from in-depth conversations with both manufacturers and dubbing engineers, is the basic job description of what these hard disk systems are supposed to achieve, and how they will advance the creative options made available on the dubbing stage. Many film facilities remain unconvinced that simply replacing the current mag dubber paradigm with a random-access equivalent is a useful step in the right direction. And many manufacturers are carefully monitoring the changing requirements of sound-editorial and dubbing stages around the world. In summary, there does not currently exist a consensus of opinion regarding what should be provided; how the new technology should integrate with

current analog and digital replay/re-record systems; or how such technology will interface with digital audio workstations used to edit and process the basic music, effects and dialog elements for the predubs and stem mixes.

DIGITAL VS. ANALOG

There is no question that, for sheer speed of access to sound elements and for slipping individual elements against picture, a hard disk system beats mag any day of the week. And, with removable drives or MO-based media, reel changes can be made in a fraction of the time it takes to load and re-EQ several dozen mag machines. But there still remain a couple of thorny operational considerations. Many re-recording engineers can be

**WITH ONE OR TWO
NOTABLE EXCEPTIONS,
THE PROMISED
"REVOLUTION" IN
PLAYBACK TECHNOLOGY
FOR THE FILM SOUND
AND AUDIO POST
INDUSTRY HAS, BY AND
LARGE, FAILED
TO MATERIALIZE.**

equalizing tracks—and even writing automation moves—while the mag dummies are coming up to speed. It is also not uncommon for these same moves to be made while the transports are rewinding! In terms of current technology, there are one or two systems I have heard personally—notably the Dolby Digital Dubber, SoundStar DMS and Fairlight DaD—that with current or soon-to-be-announced software will be capable of the same functionality.

Of course, where mag wins hands down at the moment is in media interchange. You can walk into virtually any dubbing stage around the world,

hand a bunch of elements to the machine-room operator, dial in an appropriate offset, and be off and running. Digital equivalents still involve a literal Tower of Babel, albeit with the nod of acceptance being made by several firms to OMFI, the interchange format first proposed by Avid. Dolby has stated that its Jaz-based media (8 record tracks; 16 replay) will be plug-and-play compatible with Avid/Digidesign DPR (Digital Player/Recorder), the latter comprising a pared-down version of AudioVision, with simplified user interface for the dubbing stage.

A couple of companies are preparing translation utilities that will convert native audio and project file structures into some intermediary that can be read either by OMFI-compatible dubbers, or something just as useful. (Fairlight, for example, is touting its non-proprietary file format as a possible alternative to OMFI data structures.)

But these considerations pale in significance, I would suggest, when weighed against the current debate regarding compatibility of dubber media with editorial workstations and hard disk editors. Anyone who has visited a dubbing stage within the past year or so has encountered a virtual battery of workstations feeding cut elements to the music and effects sections. Today's music editors and supervising sound editors tend to hedge their collective bets—you never know what might be needed as an alternate, or what changes might be required during a dub. In this case, access to the basic elements via a Pro Tools system, for example, makes a great deal of sense.

And consider the transition from one temp dub to another. The process of reconfirming the various cut elements to accommodate the inevitable picture and related editorial changes takes a lot of time. In this case, the dubber would offer the ability to call up a master project file, compare it with the timecode in/out points from the automation data—or even the modified time-of-day track in the digital recorder—and then, just as an EDL is imported for conforming tracks prior to editing, would let the changes ripple though the original data.

Now, within a couple of seconds, we have performed a complex sequence of changes that would normal-

*Large format
fully automated
mixing consoles?*

*We didn't just write the book.
We are the book.*



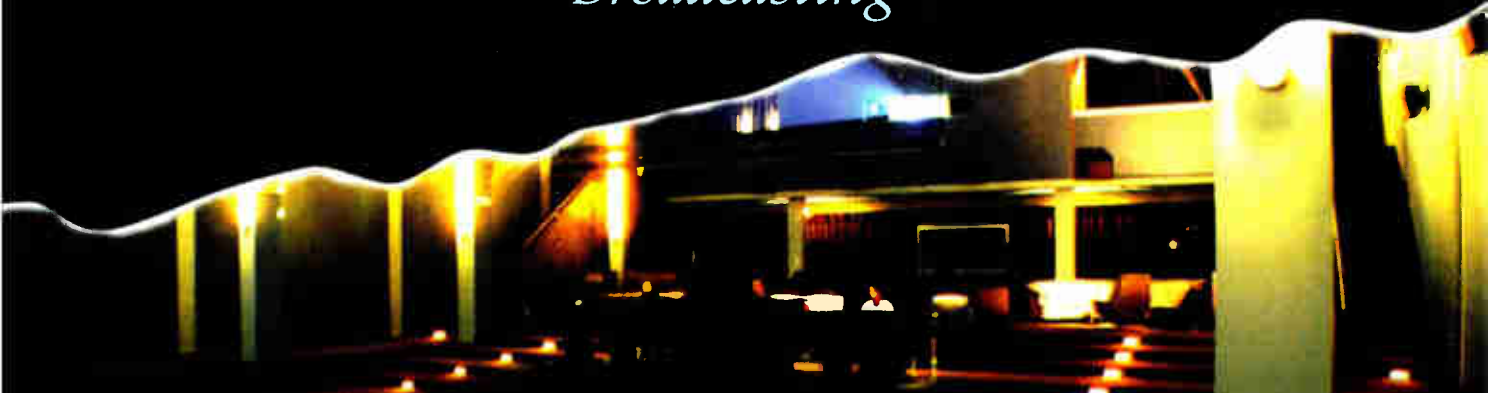
 **Harrison**

Video Post Production

Film Re-recording

Music Recording

Broadcasting



*Harrison MPC
Studio Babelsberg, Berlin*

 **Harrison**

7104 Crossroad Blvd, Suite 118 • Brentwood, TN 37027
FAX: (615)370-4906 Phone: (615)370-9001
UK Office: 11 Chapel Street • Berkhamsted, Herts HP42EA
Phone/FAX: 44 1442 875900
EMAIL: sales@glw.com Web Site: <http://www.glw.com>

ly require several days of tedious work on a Moviola, or involve retyping new timecode numbers from the modified track sheets. Either way, it's a stone-cold waste of a sound editor's time; far better to integrate the processes, so that data can pass in both directions from the editorial station to the stage, and back again.

That particular scenario, as I have been discovering, is probably a ways off. Sure, Fairlight and SoundStar offer compatibility between replay dubbers and with their own workstations—the latter with Fostex Foundation, in addition to other species of digital editors—but such compatibility assumes that everybody is using the same brand of workstation. (Given that the most prevalent system in use today is the ubiquitous Pro Tools, it would seem that dubber manufacturers should start playing nice with Avid/Digidesign?)

In the meantime, digital-to-digital transfers have become a way of life. As one industry observer put it to me quite succinctly: "With every manufacturer taking a proprietary approach to DSP, media files cannot be exchanged without first creating a composite file [in which] the processing has been completed. Creating the composite file in real time *is* a transfer."

The objective, of course, is to minimize the number of transfers and speed up the transfer process. The SoundStar DMS system accomplishes this by completely eliminating the real-time pass normally required to create an updated composite file of material being imported from the editorial workstation. The system further reduces transfer time by importing a playlist file from the source machine direct to the transfer unit. This shortcut allows the transfer unit to open record bins and drive the source unit, via timecode, to the next audio event, skipping over blank spaces with no audio. According to SoundStar, such a process can reduce transfer time by as much as 50% compared to a real-time transfer. (And if you factor in the time for the real-time pass to create a composite file in the source machine, the total time saved in transfer can be more than 80%.)

TOWARD THE FUTURE

For many film-dubbing facilities, all of this is really a Band-Aid for transitional technology. With all-digital mixers now being offered at a variety of price points, the full integration of automated

mixing, signal processing and hard disk replay/recording—plus a certain amount of waveform editing and track manipulation—is just around the corner. At that time, projects edited on any workstation could (theoretically) be imported as sound files plus companion timecode/feet-and-frame slugs, and then remain within the digital domain throughout the temps and finals. In fact, the LCRS, 5.1-channel or SDDS mix could be made from a single pass through the automation data, and not the current premixed elements and other intermediary stages we currently use. (Assuming, as we might, that sufficient storage capacity exists within the all-digital machine room/hard disk server, and that media can be added and removed for editing as easily as we would currently mount/dismount a high-capacity hard drive or removable media.)

By way of an example, consider the SSL Axiom Film Dubbing System with DiskTrack, or the AMS Neve Logic Series with integral AudioFile editor, both of which have been used during the re-recording of major feature films. Recall that central to the concept of these all-digital console systems is the storage of audio on hard disk and shared access to I/O resources. Such a resource management capability offers a number of advantages, in terms of production quality and in the cost-effectiveness of installations.

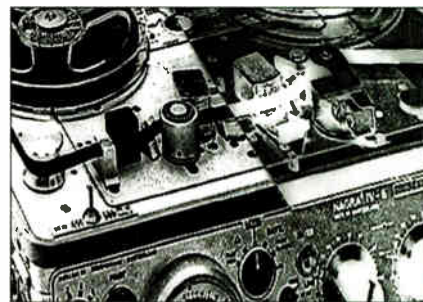
Through the use of shared access to the primary record/replay media, the system can also be used to prelay/offload materials while the mix is under way. Similarly, the system's I/O resources could be used by a supplementary transfer and editorial station, thereby removing the need for additional analog/digital inputs and outputs. With certain modifications, including a move toward centralized server-based sound-file storage/replay—and the acknowledgment that today's film dubbing consoles look that way for a distinct purpose—then either of these systems could be configured as powerful tools for the all-digital dubbing stage just ten minutes into the future.

All we need now is a disk-based, random-access replay system for the picture that looks as good as film. Any ideas?

NOTE:

We will be back in the April 1997/NAB convention issue, with a complete overview of available sys-

tems and examples of their use in film re-recording. Something tells me, however, that several of the names that we currently recognize will be absent from that list. Time will tell. ■



—FROM PAGE 168, SOUND FOR FILM

television industry has gone over to hard disk, nonlinear sound editing and picture editing, the latter being offline for the most part. Yes, the odd movie is still picture-edited on film, and a large number of re-recording stages continue to use mag film as their primary recording medium. While all of this is true, I believe that in a few years increases in storage capacities will allow everyone to reach the obvious next plateau.

For picture, this will entail digitizing the camera negative for an entire edited feature at 2,000-line resolution (taking up something like 7 terabytes, or 40 MB/frame), giving filmmakers the flexibility to not only color-correct in methods not possible with standard film technology, but also to spit out what will be one seamless "optical" that will last two hours. Eventually, storage capacities will allow all printed negatives to be digitized, but that's a ways off with the 15:1+ shooting ratios of most films. The printing picture negative itself will be seamless: You will be able to make as many splice-free "original negatives" as desired, thus removing the very serious worry that filmmakers have about spliced camera negatives. But I've gotten off the track momentarily here.

With the soundtrack, as soon as storage will allow it, the printing track negative will be the only sound element that runs on a linear piece of tape or film. By the turn of the century, I have no doubt that all premixing, final mixing and print mastering will be done to some form of nonlinear digital storage device.

This battle is being waged intensely by a handful of companies, and I think that many are making a mistake in trying to literally emulate what it is replacing, 35mm mag film—"emulate," as in record and playback sound, with abili-

Announcing

The Newest.. Yet Oldest Professional Audio Workstation

Choosing the right workstation may be the most important decision you make as a professional.

Krystal™ & MicroEditor™ now create the most affordable, 24-bit professional workstation using on-board I/O or expanding with mastering quality MicroSound™ I/O Modules or 8-channels analog & digital I/O.

SMPTE & MIDI I/O

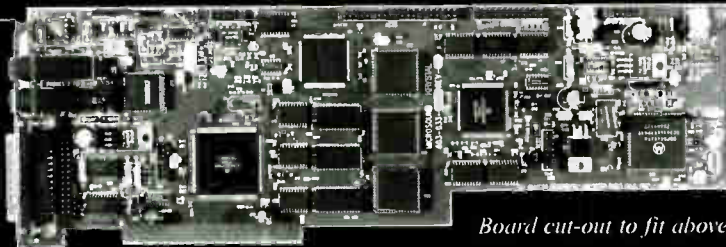
Digital Word Clock

24-bit transformer coupled AES/EBU & SPDIF

16 bit 64x stereo D/A headphone/line output and A/D mic/line input with 1/4" connectors

Interface to externally shielded MicroSound modules for 2 to 8 master quality analog channels

Advanced 32 bit DMA PCI-bus



Interface to optional 8-track AES/EBU & SPDIF digital I/O, and 8-track analog I/O

State-of-the-Art dual 56301 & 56303 66MHz Digital Signal Processors and dual ported SRAM

Board cut-out to fit above Pentium

The Krystal DSP Engine

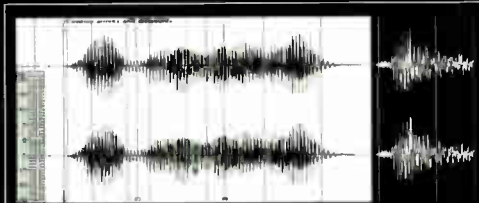
For 19 years, audio professionals worldwide have come to MTU for custom engineered workstations. For 7 years, MTU's MicroEditor™ Windows® based software, DSP board and MicroSound™ I/O module exceeded their demands for quality, reliability, flexibility and usability. Now Krystal, with 6 to 12 times more DSP power, runs MicroEditor on a Pentium based workstation. The standard Windows disk and file formats allow using any fixed or removable media drives, networking with any LAN, or communicating via telephone ISDN.

"The first day I used MicroSound, I produced a perfect 30 minute mix for the first time in my career! I used to spend 40-80 hours loading an 8-track and 6-8 hours mixing and editing, making trade-offs because of time and budgets. With MicroSound, it only took 8 hours and I wasn't even tired!"

Dave Bregman

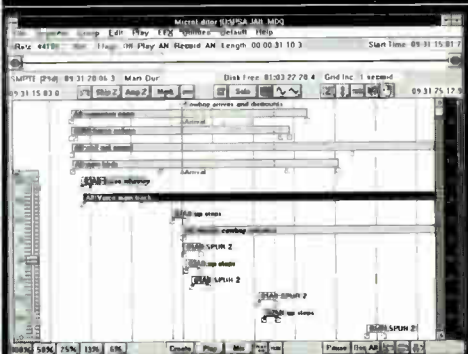
"...revolutionary, paradigm shift and unique... all apply. MTU has struck an incredibly clever balance between speed and an ultimate capacity of 128 tracks. MicroEditor distinguishes itself from other DAWs... every digital sample is evaluated and participates in the fade with 56-bit precision... far superior to DAWs that approximate fades by changing gain 30 to several hundred times a second."

Mark Karaman
In Motion Magazine



"The assurance that the waveform view would be accurate... made editing operations faster."

Dave Tosti-Lane, Mix Magazine



"Mixing with MicroSound is the ultimate automation."

Eddie Ciletti, EQ Magazine

"I was astounded when a client brought in 8000 delete edits for 10 hours of material. MicroSound turned this nightmare into a dream. Not one edit was detectable when delivered."

Rich LePage

"After years of using MicroSound I haven't experienced a single software failure. Plus, every 60 seconds my work invisibly backs up, safe even from power loss."

Jim Boling

Shown at AES booth #1500

Krystal Workstation Options

- * MicroSound I/O modules provide 2 to 8 shielded analog channels delivering -93 to -100dB THD and -115dB noise floor, at every sample rate worldwide; 8K to 48KHz.
- * MicroSync™ sync-lock resolves to video blackburst and SMPTE TC for film pull up/down, post sweetening and locking with tape.
- * AES/EBU 8-track DAT interface, and 8-track 16-bit analog I/O.
- * MicroCD™ writes Red Book CDs at 1-2-4-6x speeds and edits PQ codes; for any user.
- * MicroTools™ provides professional noise and signal removal, time & pitch change (variable & fixed), sample rate convert, filtering, and pure waveforms.
- * MicroADPCM™ compresses audio for CD-I class A, B and C at 4 times speed.

Krystal — clearly the right decision. Contact our engineers today for a free brochure and to discuss your needs.

micro sound

Quality Digital Audio Since 1977

Micro Technology Unlimited
PO Box 21061
Raleigh, NC, USA 27619-1061

Voice: 1-919-870-0344 Fax: +870-7163
Web: www.mtu.com Email: info@mtu.com

ties to slip sync. But most of them do not include full edit capabilities on the dub stage, and I think that this is very shortsighted and unimaginative. Undoubtedly, this has come from the designers at these companies having lunch with mixers and having them describe what makes mixing to mag what it is.

The standard answer goes something like this: Editors edit, and mixers mix, and we don't like to turn mix stages into "big, expensive Moviolas." (The phrase, dating from the early '80s, has stuck.) My reply to this is: a) who said that sound editors won't be the ones to tap the deeper edit capabilities of tomorrow's dubbers and recorders on the dub stage? and b) who *cares* if mixers in fact are doing the editing? Just as the "Ketchum boxes," which allow easy slipping of individual mag transports, have become standard on re-recording stages, so will mixing from a waveform display of an edit system. In fact, it *is* the way to go, speaking from my experience of mixing films in this manner. It's so instinctive and natural that the old way of mixing—having to glance at a cue sheet telling me what sound is welded to some piece of tape in the machine room—now feels downright weird.

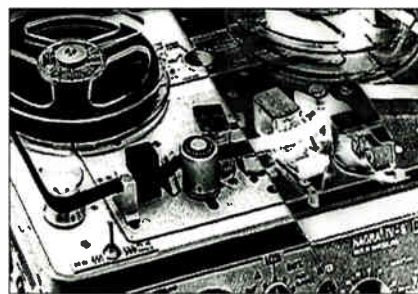
Many of the arguments about cutting off the edit abilities of digital dubbers are thinly veiled pleas to keep the Hatfields and McCoys (sound editors and mixers) separated across all boundaries: union, Academy and simple job descriptions. This strikes me as seriously flawed reverse engineering, and I have little sympathy and even less patience with people who feel that every new improvement brings them further and further away from job security. When should we have begun resisting change? In 1950, when mag started to replace optical tracks in recording and sound editing? There's no doubt that the personalities of sound editors and mixers will continue to merge like women in a Bergman film.

And when picture and sound editing systems *really* start talking to each other, I guarantee you that films—not just low-budget quickies, but A-films—will be sound edited and mixed by one person who will start work on the first day of shooting. An important factor in this equation will be simplifying the flow of sound from production to picture editorial to sound editorial. And so we get back to the title of this column.

The other main reason for the failure of digital recording to take over production sound is that you still end up with a recording on a linear piece of tape. That

wouldn't be such a crime against mom and apple pie were it not for the fact that timecode on most digital formats, as noted above, is such a moving target. Recording on a removable drive with a standardized file format will hopefully allow the picture department to quickly and easily—not to mention digitally!—transfer sound from production. And the post sound people can similarly spew the data into their workstations, cutting final sound from the moment picture editing begins. This is not an original idea, folks, but no one has really, truly implemented it.

There will obviously be different models of the "Digital Nagra" for different purposes, some for DC-powered location work, and others for studio and post applications. With regard to production, I think there will be a Deluxe model that will allow up to eight chan-



nels of recording, with multiple units able to be controlled as one, *a la* today's MDMs. The catch here, I hope, will be that the preformatted (please!) cartridges will allow you to record mono on one take and a full eight tracks on the next. No reason to gobble up more ones and zeroes than necessary.

Here's a way-out idea for anyone who wants to build the real end-all machine: include the ability to sample and loop (in RAM) sections of previous takes, playing back via a dedicated output that would be fed to the actor to facilitate on-the-spot wild tracks. Wild tracks, in case you don't know, are recordings made on the set when the camera is not rolling; sometimes it's sound effects, and sometimes it's dialog. Recording wild dialog tracks, as is done when there are noise-producing devices during the take proper or when the actor flubs only one line out of a whole take, is one of the great, untapped techniques of getting good production sound because you can intercut these tracks like butter with sync production dialog. Production mixers know about wild tracks, and sound editors know them, but directors and assistant directors just don't give us the time to realize their potential. I would like to

think that the ability to sample small sections would add some imprimatur of reliability to the wild track procedure, encouraging production folks to call on it more often.

I think that the ultimate machine should have its A/D and D/A converters in some form of card slots, so that mixers can easily "trade up" to expensive after-market units, if desired. This, of course, assumes that the recorder is being fed a signal from an analog console, and undoubtedly the makers of the better production consoles will eventually include A/D converters and digital I/O into their boards.

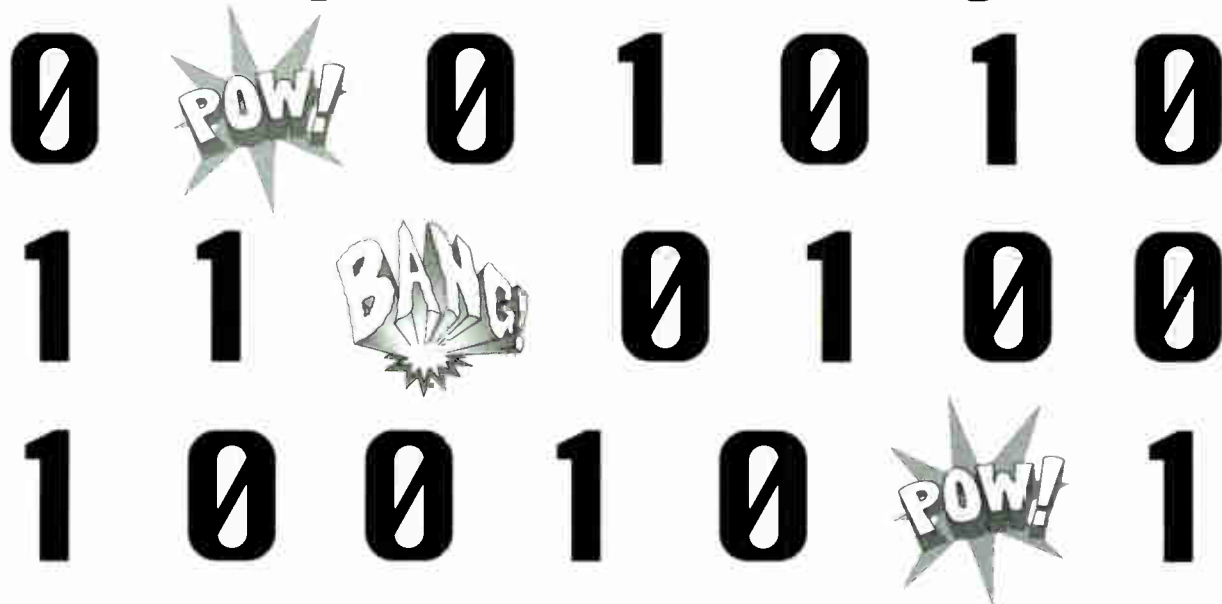
Regarding the 16/20-bit issue: I think that any machine will have to make both available and that most production mixers will opt for the 20-bit route, for the leg up it will give them in conquering the twin devils of noise and distortion. I am very leery of using any sort of bit-rate compression at this point.

What medium? It's certain that no single format is going to last more than a few years, storage increases and consequent media changes being what they are. To this end, I think that it would be great if the units would also be modular to the degree that the drives themselves can be updated without having to change out a whole machine, just as SCSI connectors allow us to swap storage devices easily. As long as the file format remains relatively constant, this would give production mixers the confidence to buy into a new level of technology without worrying about throwing the whole thing away when next year's model comes out. Note that people are still using mono Nagra 4.2s that were made in the early '70s, and their timecode stereo siblings, the IV-S TC, have remained virtually unchanged since their introduction in the mid-'80s.

There should also be a small, 2-track only version that would be used for field sound effects recording and for simpler production recording. I would say that picture editing departments only require a playback-only model, except that they do have the occasional need to record, be it either scratch temps or "play-outs" of their tracks. They would probably use a standard studio unit. And all models should be able to record on two drives simultaneously, a feature that I think will go over especially well with production mixers. One final not-so-small issue: There should be separate absolute time and timecode, plus index markers for each take.

I can only implore any company thinking of jumping into this "Nagra of

Hey, it's not like you can actually hear a little voltage fluctuation, right?



Use a
Furman
Voltage
Regulator
 and you'll
 never have
 to find out.

No, not directly — unless you like to plug your headphones right into an AC wall socket. You'll hear it in the audio or see it in the video instead. AC line voltage irregularities can cause audio tonal changes in analog and tube equipment. Borderline voltage sags can cause random data loss in digital and MIDI equipment. When the line dips a volt or two lower, equipment ceases functioning completely. At the other end of the scale, voltage spikes and surges can add pops and clicks, and, in extreme cases, cause permanent damage.

All Furman voltage regulators are designed specifically to protect sensitive audio, video, and computer equipment from these catastrophes. We offer tighter regulation and deliver the required output voltage over a wider range of input voltages. We use low magnetic radiation, efficient toroidal autoformers and switch taps only at voltage zero-crossings, to avoid *creating* glitches in the AC waveform. And not only will a Furman regulator provide clean, filtered, spike-suppressed power to your delicate equipment, but if it senses abnormally high or low voltage (such as from inadvertently connecting to 220V instead of 120V), it will instantly shut down, protecting both itself and the rest of your gear.

There are seven AR-Series regulators to choose from, providing output voltages of 120V for North America or 100V, 220V, 230V, or 240V required elsewhere, at currents of 6A to 30A. Furman also makes a complete line of power conditioning, power sequencing, power distribution, and 60V/120V balanced isolation equipment. Contact us for details.

FURMAN

SEE US AT AES BOOTH # 1029

FURMAN SOUND, INC.

30 Rich Street • Greenbrae, CA 94904 USA

Tel: (415) 927-1225 • Fax: (415) 927-4548



Furman products are made in the U.S.A.

USE READER SERVICE CARD FOR MORE INFO

the future" to not get too greedy and come up with a one-off design that will only work with their equipment. At the same moment that I say this, I play devil's advocate with myself and think of the trails that Alesis and Tascam blazed with their MDM formats: They just went out and did it, and bless them for their boldness. But then again, they did license their technology to other manufacturers and have had deserved success as a result.

And please, folks, don't just talk with the most obvious market (production mixers). As I have tried to outline, for this format to fly, by definition it will have to be approved by and useful to not just post sound people but also picture departments.

—FROM PAGE 169, POST LOGIC STUDIOS

panies, commercial producers and independent filmmakers. Current shows mixed at Post Logic include *Mad TV*, *Mr. Show* and NBC's *The Jeff Foxworthy Show*.

Post Logic operates four audio post rooms, in addition to a pair of telecine bays, component and composite video edit suites, a nonlinear finish suite, and three graphics rooms based on a collection of Quantel HAL, Henry and Discrete Logic Flame workstations. A central machine room houses an array of D1, D2, Digital Betacam and a variety of analog video formats.

The facility recently expanded its audio department with the acquisition of three Avid AudioVision systems with 16-channel playback. "Each of our main rooms now features disk-based playback [of prelaid music, dialog, ADR, Foley and music elements], a development that dramatically speeds up mix-to-picture sessions," Voss says. "All three AudioVision systems are linked together [via a 10-base-T Ethernet network], and can share/transfer files between different rooms." In addition, AudioVision's extensive editing features include a comprehensive database management system, real-time EQ, and an ADR/Loop Record mode, which, according to Voss, "provides for easy management of sound looping and dialog replacement."

"The Avid systems are fully compatible with our existing Pro Tools system," Voss says. "We also offer full-motion digital video playback from AudioVision."

Post Logic's largest mix room is Stu-

By the way, in 2001, if you want to get rid of your well-maintained IV-S, give me a call. I'm thinking of salting them away like Chuck Berry is doing with vintage cars.

I had been planning a "what will happen by the year 2000" column for early next year, but this column pushed itself in that direction all on its own. Let me know if I might have a future as a psychic. I'm at PO Box 24609, New Orleans, LA 70184, fax 504/488-5139, or via e-mail: swelltone@aol.com. ■

— — — — —
Larry Blake is a sound editor/re-recording mixer who lives in New Orleans for reasons too numerous to mention, although one of them would have to be that he can.

dio A, which features a 72-input Solid State Logic SL-6000 G Series console. Playback is from analog Otari MTR-90 24-track and MTR-20 ½-inch 4-track, as well as Avid AudioVision: Tascam DA-88s, Sony PCM-800s and DAT machines are also available. The room's session engineer is Fred Howard, who mixes the weekly program *Mad TV* in Studio A. He also handles promos and trailers for UPN, CBS, ESPN, CNN and the Fox Network, in addition to a steady stream of commercials for such clients as Coca-Cola, Mitsubishi, Taco Bell, Mazda, AirTouch and Volvo.

Studio B is set up for Dolby Surround mixing and features a 60-input Neve VRP Series console. Unlike Studio A, this room shares a central machine room with Studios C and D. The room is "home" for Jamie Ledner, who has won Emmys for his work on the 1988 Seoul and 1992 Barcelona Summer Olympics; he is currently an Emmy nominee for the CBS Special *Frank Sinatra: 80 Years My Way*. In the past, he has also mixed for a variety of network specials, as well as episodic TV series for NBC, ABC, CBS, Fox, Showtime and other cable outlets, plus music specials and videos. Ledner currently mixes *Mr. Show* and *The Jeff Foxworthy Show*, in addition to handling promos for *Fox Kids*. Backgrounds and crowd walla for *The Simpsons* are also tracked in Studio B, using the room's companion Foley/Announce booth.

Studio C, which serves as Bryant Arnett's home base, features a 48-input Solid State Logic SL-6000 E Series console with G Series automation, linked to an AudioVision system, and is used

to mix a variety of promos and commercials. Arnett's credits include promos for The Fox Children's Network; sound mixing for the "Star Trek—Judgment Rights" and "Stonekeep" CD-ROMs; Smashing Pumpkins' "Veuphoria" long-form music video; plus commercials for Taco Bell, Apple and LA Cellular.

Post Logic's smallest mix room, Studio D, which specializes in prelay, voice-over, effects and music sessions, features a 40-input Neotek Elite 336 console and a Digidesign Pro Tools system. Resident mixer Conner Moore handles a wide cross-section of episodic TV programs and specials, plus commercials and promos. He has also mixed sound for a number of films, including *Sensation* for HBO/Kushner-Locke and *Campfire Stories* for The Vault Production.

According to Howard, Studio A's lead mixer, the use of Avid AudioVision for playback of up to 16 random-access track elements—soon to be increased to 24-plus—dramatically reduces session time for a mix-to-picture project. "We can save between 25 and 30 percent during an average session," he says. "These savings translate to my being able to achieve in five to six hours what would normally have taken a full eight hours. Now, we have additional time to explore some creative alternatives—what I refer to as 'Noodling Time'—and see if we like them better than the mix balances we have in the can."

"Also, because AudioVision uses clip-based EQ, we can automate a lot of functions that normally we have to do by hand; [that feature] also helps speed up a session." In terms of time-code synchronization to other, nonlinear sources, a TimeLine Lynx system handles analog and digital transports with a two-second lock time.

Howards' track layout on his AudioVision playback drives normally comprises stereo music on tracks 1 and 2, stereo effects across 3/4, 5/6 and 7/8, plus spot effects and music on tracks 9-12, dialog on 13, 14 and 15, with voice-over on track 16. In essence, the SSL console serves more as a monitor board for the prelaid tracks, with automated level and pan control. After a session, the 16 AudioVision tracks are archived to an analog 24-track or DA-88s, and the mix transferred to the master videotape.

"We run the AudioVision at a sampling rate of 44.1 kHz," Howard continues, "for improved digital-to-digital

- Fully Digital Audio Signal Path
- Precision Surround Audio Monitoring for Quality Control
- Sonic Solutions No-Noise™ and Mastering Software
- Digital Betacam, D3 Digital Video Formats
- N-Vision Converters
- DA-88 Digital Audio Recorders
- Film and 24 Track Machines

Digital Layback, Mastering and Quality Control

three main functions

- Digital Layback of Audio to Video Masters
- High Quality Disc Mastering
- Quality Control

UNIVERSAL

Universal Studios Sound Facilities (818) 777-0169 <http://www.mca.com/studio>

World Radio History

Mann, there are two different ways to write a comedy score: "There's comedy scores that are yuk-yuk funny, and there are comedy scores that really play against the comedy." On these Mel Brooks-directed films, his score worked against the action. "You score it as if something serious was happening, and the effect is that it actually exaggerates the comedy. Instead of pointing to it, you're ignoring it, so that makes the comedy scene that much funnier."

While Mann's been busy with his film scoring career, he has also kept his toes in television and logo scoring, and reluctantly admits that he's the author of the Lucky market theme song. Mann is

currently scoring the theme to a new NBC news magazine, *Access Hollywood*, which premiered in September. "Everybody should be humming that theme, kinda like how everybody has *Entertainment Tonight's* theme in their brain. Hopefully, mine will be the next one," he says. Mann won an Emmy in September for his composition on *Language of the Heart*, a Showtime series.

Writing catchy logos has been attracting attention recently, but it's Mann's work on the CBS miniseries *In Cold Blood* that's enabled him to sample from his wide variety of musical interests. The score has evolved into a musical combination of Bernard Hermann

and Ry Cooder. The Cooder influence arrived after Mann found out that Eric Roberts, who is playing Perry, the lead character, had never held a guitar before. "We came up with the idea to make it all bottle-neck slide guitar," he explains. "That way he just has to go to the right bar numbers, and I have to teach him some strumming stuff." Not only does the musical aspect of the idea work better, it also fits in with a story point that had been previously unexplained. "Back in the '50s, when this happened, a lot of slide guitar musicians used to play with a medicine bottle on their fingers," Mann says. "This guy, Perry, is constantly popping aspirin because he had an operation and they messed up his knees. So, the whole thing clicked together, like it was meant to be."

After spending the past 20 or so years in the Los Angeles grind, Mann recently moved his family up to the Seattle area. He maintains studios in both areas, his Los Angeles facility being the workhorse. Mann's sound modules include a Korg M1, three Roland SP-700s, a Kurzweil K2000R, E-mu's Emax 2 Turbo, Proteus 1, Proteus 2 and ProCusion system, as well as Roland's U-220, an Opcode Studio 5LX interface and a Lexicon MRC MIDI Remote Controller. His board is a Mackie 32•8 with a meter bridge and Ultramix automation. He generally delivers his score via Tascam DA-88, but he also mixes down to a Panasonic SV-3700 DAT. Effects gear is a mixed bag, including Lexicon's PCM 80 digital effects processor, LXP-1 digital reverb and Roland's SDE-1000 digital delay. He runs Opcode's Studio Vision Pro and Galaxy Plus Music software from a Macintosh PowerPC 7100/80. The studio is powered by Bryston 4B-ST amplifiers; monitors are Tannoy DMT IIs.

Mann's Seattle "mini-studio," where he works up demos, includes a Yamaha SC3 silent grand piano with MIDI capability, a Roland JV-1080 with orchestral and world expansion cards and Opcode's Studio 5LX interface. It's powered by a Carver PM-120 amplifier, and his monitors are Yamaha NS-10s.

And in case you were wondering, his sister is now an assistant professor of psychology at Concordia University in Montreal. With a laugh, Mann admits that if he had followed his sister's footsteps again, "I'd be a doctor, which my parents would probably have preferred."

David John Farinella is a freelance writer based in the S.F. Bay Area.

SEE US AT AES BOOTH #1330

Millennia
Media

Millennia
Media®

High Voltage, High Accuracy
Microphone Preamplifiers

Now available with 20-bit
UV-22® Analog to Digital
Converters. Record 20 bits
direct to ADAT & DA-88

Available at:

Sam Ash Professional, NYC
Cutting Edge Pro Audio, SF
Ears Audio, Nashville
and others..

- Used by the world's most critical engineers, artists, producers & labels
- Thousands of channels in use
- Unsurpassed for capturing pure musical reality

T 916-647-0750 F 916-647-9921

UV-22 is a trademark of Apogee Electronics Corp.

"...DETAILED IN THE EXTREME."

Pro Audio Review Magazine
Dr. Fred Bashour, reviewer

"I'VE NEVER HEARD OUR MICS
SOUND THIS CLEAN ON PIANO."

Jack Renner, President
Telarc International

"SOUNDS BEST OF THE UNITS
EVALUATED...TRANSPARENT IN
THE EXTREME...WILL BE HARD
TO BEAT."

Studio Sound Magazine
(UK), Sam Wise, reviewer

"...FOR THOSE WHO SEEK ABSO-
LUTE PURITY IN REPRODUCTION."

Mix Magazine, Review
George Petersen, Editor

"...THE HANDS DOWN WINNER IN
THE CATEGORY OF ACCURACY."

[Home and Studio] Recording Magazine
Blind test of nine professional mic preamps.


"YOUR PREAMP IS BRILLIANT."

Frank Serafine,
Engineer extraordinaire

"OUR MOST NEUTRAL
MICROPHONE PREAMP."

David Smith, Dir of Engineering
Sony Classical Productions



 It's 3:00 a.m. and the studio is hard at work archiving sound elements and masters to CD. But there isn't a soul in sight. You and your crew are home—sound asleep. That's because you have an advanced new KODAK Writable CD Audio and CD-ROM Authoring System that lets you master CDs without even being there. And it helps you to save money—day or night—while you tend to other matters.

The key to the system is the KODAK Disc Transporter. It automatically handles disc mastering from start to finish, providing a continuous production flow for up to 75 CDs.

Now You Can Archive Sound Asleep.



The Disc Transporter supports the KODAK PCD Writer 600—the world's fastest CD writer. And the system comes complete with audio and publishing software, as well as KODAK Writable CD Media with INFOGUARD Protection System.

Why lose sleep over archiving and CD mastering? The KODAK Writable CD Audio and CD-ROM Authoring Systems work like a dream.

For additional information, check the Kodak Web site at <http://www.kodak.com>, or call 1-800-CD-KODAK (1-800-235-6325). In Canada, call 1-800-465-6325, extension 35505

USE READER SERVICE CARD FOR MORE INFO

World Radio History

LEXICON PCM 90

DIGITAL REVERB

Lexicon has done it again. The PCM 90 is a great-sounding reverb that offers something for everyone. Whether used for ADR, mix-down, sound reinforcement or broadcast, this high-quality reverb surpasses its rivals sonically and offers both ease of use (for those with little time to explore its full range of controls) and powerful creative features to satisfy the most demanding propellerheads. As the owner of both a PCM 80 and an M5000, I still don't know how I lived without this baby. Come to Papa.

All of the PCM 90's five algorithms use the now-familiar matrix scheme that has parameters organized into rows. As with the PCM 80, effects can be partially edited in Go mode; full-matrix editing is available in Pro mode. Parameters are found in similar places in the full matrix, with the Controls, Time and Design rows first, and the Modulation, Patches and Custom rows last. Although the Ambience algorithm has only six rows of parameters, the Random Hall has eight, the Rich Plate has nine, the Concert Hall has ten, and the Chamber Room, which is really two independent effects rolled into one, has eleven rows. The soft row of ten adjustments is all that is available in Go mode editing, and those not already familiar with the matrix scheme are advised to start out this way if they simply want quick results.

Each algorithm has some unique parameters. Both the Random Hall and Ambience algorithms have random delay elements, controlled by the Spin and Wander parameters, which can make their presets sound more natural, particularly on vocal material. Random Hall also has a Shelf control which modifies the lowpass character of the reverb's high-cut filter. The result is a shelving contour that,



when set low enough, makes the spectral content of the reverberation closer to an actual room's acoustics, like a good concert hall.

Concert Hall presets have a digital compressor and expander built into the algorithm just after the reverberator, allowing sophisticated dynamics management of reverb tails. This unique feature makes the PCM 90 a choice reverb for arenas and other acoustically challenged venues where the built-in background "swoosh" of the room makes it difficult to use reverb effects at all.

250 FACTORY PRESETS

The PCM 90's 250 factory presets are organized into five banks of 50. Each bank is organized into five rows of ten presets. The banks, labeled P0 through P4, are sorted into Halls, Rooms, Plates, Post and Splits. While these are roughly analogous to the five algorithms, different effects can be constructed out of each algorithm. There are, for instance, some Plates constructed out of Ambience or Chamber algorithms. Random Hall and Rich Plate have stereo delay with feedback that can be as long as 1.2 seconds which can be used as regular delay effects without reverberation.

and can also have short amounts of stereo early reflections which can be modulated for chorus effects. Chamber, Room and Rich Plate all have left and right Echo parameters which, unlike delay, recirculate through the Diffusor, giving them more distance with each repeat.

The Splits bank contains variations of the Chamber Room algorithm, which is actually two separate reverbs that can be configured for dual stereo inputs or as dual mono for independent inputs sharing the same stereo outputs. One example of the possibilities of this dual algorithm is to use the Room side as a hall and configure the Chamber side as a stereo echo, returning it through either its own reverb chamber or early reflection path. The balance sent to the inputs will determine the reverb-to-echo ratio. By patching the adjust knob or a custom control to both the chamber's reverb output and to the reflections with negative scaling, the echoes can be wetted up with a flick of the wrist.

Among the many features that the PCM 90 shares with the PCM 80 is the Compare feature, which allows the user to jump back and forth from an edited preset to hear its original construction. Tempo for echoes can be tapped in via the front panel's Tap button, and

BY MARK FRINK

the PCM 90 has all the tempo facilities introduced with the PCM 80, along with the same wide range of modulation effects.

KEYWORDS SPEED SEARCH

New to the PCM 90 is the ability to scroll through the list of the last ten effects loaded. Another new feature is KeyWord, a list of 50 categories or classifications, four of which can be tagged to each preset at the end of the Custom row, making it quick to search through all the banks for a particular effect, using words like Large, Keyboard, Live or Dark.

In addition to the five preset banks, there are two registers for storing user's settings, with each again holding 50 settings in five rows of ten. The first register can be used as a scratch pad, and the second for storing a series of presets in the correct order for a particular show. Each register bank, whether internal or on a card, can be labeled: by naming the two PCM 90's internal banks "Working" and "Touring," you can ensure that there will always be a place for visiting engineers to load their card's registers.

Presets can also be stored onto PCMCIA cards and used on different PCM 90s, useful if you don't have your own personal machine. The number of banks a card holds varies with the size of the card. A 64K card will only hold a single register—not enough flexibility once you start to organize presets for various projects and tasks. A 256K card can hold up to five registers; a 512K card holds ten registers. If you'll be using more than one PCM 90 or doing different kinds of projects you'll want to be able to save a register for each machine you plan to use as well as for each project so you can quickly load or archive an entire register at a time, along with the machine's setup information.

Engineers who take the time to create their own presets for one-offs will be wise to back up their settings onto cards as well. While this is an expensive way to save settings, compared to floppy disks it's quicker and safer. (Prices for PCMCIA cards have dropped to as low as \$100 for 2-meg cards.)

Lexicon, 100 Beaver Street, Waltham, MA 02154-8441; 617/736-0300; fax 617-891-0340; e-mail 71333.134@compuserve.com. ■

Mark Frink is Mix's sound reinforcement editor.

15 Elephants, 10 Lions, 9 Musicians.

Where Would You Put The Monitors?



Although many engineers are used to working with wild animals, stage monitoring for the world's most exciting and fast moving circus is quite a sound reinforcement challenge: The Ringling

Brothers regularly perform in huge enclosed sports stadia, and the

Circus band beats the common problem of delayed reflections from the house mix by using Garwood's hard-wired M-Pack in-ear monitors.

Thanks to a Garwood Radio Station wireless system, the Circus Ringmaster can stay in sync



when he sings with the band yet he is free to move up to 300 feet



away. And when you're working with a tiger, you *want* to be free to move.

SEE US AT AES BOOTH # 1505

Wanna Hear More?

Better call Garwood at 215 860 6866 for an information pack

GARWOOD COMMUNICATIONS INC. PO BOX 1505, NEWTOWN, PA 18940
TEL: 1 215 860 6866 FAX: 1 215 968 2430 E-MAIL: 73210,41@compuserve.com

GARWOOD COMMUNICATIONS LTD. 136 CRICKLEWOOD LANE, LONDON NW2 2DP
TEL: 44 181 452 4635 FAX: 44 181 452 6974 E-MAIL: 1013202752@compuserve.com

Circus photography: Ringling Brothers



GARWOOD

USE READER SERVICE CARD FOR MORE INFO

TASCAM DA-38

MODULAR DIGITAL MULTITRACK RECORDER

Tascam first unveiled the DA-88 four years ago, at AES San Francisco. When deliveries began six months later, the machine quickly amassed a base of users attracted to this Hi-8mm, 8-track format. The DA-88's fast transport times, jog wheel control and 108-minute recording time, com-

ample, the DA-38 does not offer a slot for the SY-88 sync card (which allows the DA-88 to be used as a stand-alone SMPTE chase recorder). Similarly, the DA-38 has no 9-pin Sony P2 serial control option, and also lacks the connection for feeding an optional meter bridge.

Despite these limitations, the

to 128 tracks (with sample accuracy); machine offset for assembly editing operations; auto punch in/out with Rehearse mode; programmable pre/post roll; two locate points; user-definable cross-fades; individual track delay (up to 150 ms); shuttle wheel; and a punch in/out footswitch jack.

The DA-38 is housed in a



bined with numerous onboard features—such as individual track delay, offset sync for assembly editing and a plug-in sync card option—appealed to pro users. In fact, the DA-88 eventually won numerous industry accolades, including 1994 TEC and 1995 Emmy awards. However, the DA-88 was priced higher than competing modular digital multitracks, and many users in the musician and project studio markets turned to other, more affordable formats.

In January of this year, Tascam unveiled the DA-38, a new 8-track digital recorder that is compatible with the DA-88 format, yet priced at \$3,499. The savings were made possible by using shared parts between the two recorders to cut down manufacturing costs, and by eliminating some of the DA-88's features from the new machine. For ex-

ample, the DA-38 does not offer a slot for the SY-88 sync card (which allows the DA-88 to be used as a stand-alone SMPTE chase recorder). Similarly, the DA-38 has no 9-pin Sony P2 serial control option, and also lacks the connection for feeding an optional meter bridge. Despite these limitations, the DA-38 is a suitable addition to a DA-88-only environment, and may be combined with one or more DA-88s in many applications. While the DA-38 cannot sync to SMPTE on its own, if it is slaved to a DA-88 that is equipped with the SY-88 sync card, the DA-38 will operate in precise, sample-accurate sync with the DA-88 master. For users in a MIDI-based facility, the optional MMC-38 adapter adds MIDI Machine Control and MIDI sync operations to the DA-38.

Further, the DA-38 adds a few new tricks of its own, such as track-to-track copying within the machine, dither on/off switching, A440 digital sine wave/tuning tone generator and numeric error rate display. And features held over from the DA-88 include selectable 44.1/48 kHz sampling; the ability to sync up to 16 transports for up

three-rackspace, 16.5-pound chassis, which is 1.75 inches shorter and about 15 pounds lighter than the DA-88. In the studio this isn't such a big deal, but if you're toting three DA-38s around in a road case for remote recording, there's a huge difference between 49.5 and 93 pounds of hardware.

The DA-38's layout is similar to that of the DA-88, so if you're familiar with DA-88 operations, you'll be tracking on the new machine in no time. One obvious difference is the DA-38's use of a Shift button to access secondary functions on the feature keys. In fact, other than a few operational differences (such as formatting the Hi-8mm tapes for digital audio recording), anyone who's used an analog or digital multitrack will have no trouble with DA-38 operations.

The front panel includes a bright LED display of hours/min-

BY GEORGE PETERSEN

Introducing...

...the first new
Neumann Tube Microphone
in more than 30 years.

Neumann understands tube microphones. We've been making them since 1928. The U 47, M 49, U 67, and KM 53 are legendary - coveted by engineers and producers worldwide. When asked to reproduce a microphone with the 'classic' characteristics of our older gems, we decided to go one better. Enter the new M 149 Tube. Utilizing the K 49 capsule and headgrill from the classic M 49, coupled with the transformer-less FET 100 circuitry from our TLM 50, the M 149 Tube is a modern microphone in the classic Neumann tradition.

The M 149 Tube features 9 polar patterns and a 7-position high-pass filter. With a self noise of 11 dB-A, the M 149 Tube is the quietest tube microphone in the world.

Neumann has brought more than 50 years of design expertise to the M 149 Tube, and it shows in every detail of this truly outstanding microphone.

Neumann... the choice of those who can hear the difference...

"Open, crystalline high end, quiet."

Richard King, Recording Engineer, Sony Classical

"I love the way this microphone feels when I sing into it."

Seal, Recording Artist



The M 149 Tube



Neumann USA

6 Vista Drive • PO Box 987, Old Lyme, CT 06371 • Tel: 860.434.5220 • FAX: 860.434.3148
Neumann USA West Coast • Tel: 818.845.8815 • FAX: 818.845.7140
In Canada: 221 Labrosse Ave., Pointe-Claire, PQ H9R 1A3 • Tel: 514-426-3013 • FAX: 514-426-3953
World Wide Web: <http://www.neumann.com>

World Radio History
SEE SERVICE CARD FOR MORE INFO

SEE US AT AES BOOTH # 901

FIELD TEST

utes/seconds/frames, along with various LEDs to indicate operational status: digital in, 44.1/48kHz sampling, track copy, word in, track delay, track offset and "playback condition." The latter indicator is the same as the Error LED on the DA-88, but its name on the new machine was changed to PB Condition, a kinder, gentler phrasing. The shuttle wheel is the same as that on the DA-88, providing a playback range of 1/2- to 8-times normal speed, either in reverse or forward.

The DA-38's meters and track am-

ing buttons are nearly the same as the DA-88's, the only difference being that the DA-38 meters have 12 LED segments and the DA-88 has expanded 15-segment metering. On the DA-38 back panel are two D15-sub connectors for sync/remote in/out; BNC word sync input; DIN socket for the optional RC-808 mini-remote (\$225); unbalanced analog RCA inputs and outputs; balanced analog connections on two D25-sub connectors; and a TDIF-1 port. Also mated via a D25-sub connector, TDIF-1 is a proprietary bidirectional interface that connects to a DA-38 or DA-88 for cloning tapes, or

to various AES/EBU and S/PDIF interfaces from Tascam and third party suppliers. TDIF-1 is also the essential link for direct interfacing with digital consoles, such as the Yamaha 02R, 03D, Soundtracs Virtua or RSP's Project X. All TDIF-1 connections are made using the optional \$110 PW-88D cable.

SOME DISASSEMBLY REQUIRED

For the "void the warranty" part of this test, I completely disassembled a DA-38. Remove seven screws and the top/sides panel comes off, revealing a clean, spacious layout. Maintenance access to the transport, for occasionally cleaning the heads and guides, is excellent. The DA-38 uses a switch-mode power supply, which is compact and produces virtually no heat. It's also a lot lighter than the 10-pound conventional iron-core transformer PS tucked inside the DA-88. Best of all, there's a sizable empty space below the transport and PS assemblies: This is ideal for stowing spare parts or other necessary "supplies" that one occasionally has to take through customs on lengthy tours.

The DA-38's electronics consist mainly of two large boards located behind the meters. The Control PCB handles all the logic info, such as transport control, digital I/O routing and synchronization housekeeping. Here two large, custom ICs developed for the DA-38 reduce the parts count, while the all-surface-mount componentry on the control board reduces the overall size. Mounted two inches below the Control PCB (providing plenty of cooling air-space) is the Audio PCB. The A/D converters are Asahi-Kasei 5310 (18-bit delta-sigma with 64x oversampling); DACs are Burr-Brown PCM-1710U (20-bit delta-sigma with 8x oversampling). Both the ADCs and DACs provide superior performance to the converters used in the DA-88. In digital audio, five years seems like an eternity.

The transport is essentially similar to the DA-88's, with the exception of the head drum, which now uses (no physical contact) rotary transformers rather than mechanical brushes to transmit the signal from the heads. But the biggest improvement in the DA-38 is its lack of a cooling fan, which on the DA-88 added to operating noise and increased air/dust flow through the head and transport assembly. Due to the reduced parts



"No comparison!" "Whoa!" "Even the producer could tell the difference!" A few typical comments! The M-1 is clearly superior. Here's why:

The JENSEN JT-16-B INPUT TRANSFORMER. The world's best mic-input transformer. If you thought transformers were a compromise, you haven't heard the JT-16-B!

The 990 DISCRETE OP-AMP. The 990A-24V discrete op-amp is superior to the monolithic op-amps found in other equipment.

NO COUPLING CAPACITORS IN THE SIGNAL PATH. DC servo circuitry and input bias current compensation circuitry eliminate all coupling capacitors and the degradation they cause.

Standard features: LED-illuminated push-buttons; shielded toroidal power transformer with 6-position voltage selector switch; silver plated XLRs; ground-lift switches; phantom power, polarity reverse and gain controls.

Options: VU-1 meter (shown); PK-1 meter; the Jensen JT-11-BM output transformer (the world's best); gold plated XLRs.



THE JOHN HARDY COMPANY

P.O. Box AA631
Evanston, IL 60204

Phone: 847-864-8060

Fax: 847-864-8076

USE READER SERVICE #249 FOR MORE INFO

Down by the Bitstream

Mention Oregon and most people visualize rugged Pacific coastline, whitewater streams, mountains and big trees. Yes, we do have timber (and spotted owls), but Oregon also has a "forest of silicon", where companies design everything from A to P... that's audio to Pentiums™.

Since 1984 Audio Precision has designed and manufactured advanced audio test equipment in Beaverton, Oregon. Our first product, the System One is now known as the recognized standard for audio testing, with many thousands in use worldwide.

System Two furthers this audio testing tradition with new features designed for testing the digital audio pulse stream, as well as higher audio performance specifications overall:

System Two

- Complete AES digital interface pulse stream measurements to AES3 spec
- Read and test AES interface control & status information
- Measurements of embedded audio
- Analog THD+N $\leq 0.0004\%$ (-108 dB)
- Analog Analyzer residual noise $\leq 1.0 \mu\text{x}$ (-118 dBu)
- Digital analyzer noise ≤ 140 dBFS wideband
 ≤ 150 dBFS narrowband
- Digital analyzer residual THD+N ≤ 130 dBFS
- FFT analyzer residual -140 dB

System Two... the New standard for Audio Testing. For further information and a demonstration contact any of our worldwide representatives.

**Audio
precision**

Audio Precision
P.O. Box 3209
Beaverton, Oregon 97075-3070
Tel: (503) 627-0832 FAX: (503) 641-8906
US Toll Free: 1-800-231-7350



INTERNATIONAL DISTRIBUTORS: **Australia:** IRT Electronics Pty. Ltd. Tel: 2 433 3744 **Austria:** EL SINCO GmbH Tel: (0) 815 4110 **Belgium:** Trans Europe Electronics B.V. Tel: 010 422111 **Canada:** EL SINCO Rep. Office Solia. Tel: (2) 958 12 45 **Denmark:** GERRAUDIOL Distribution Tel: (11) 99 91 22 **France:** G.E.S. Co. S.A. Tel: 242 63 37 **Germany:** EL SINCO HBB GmbH Tel: 021 709 15 4 **Greece:** KEM Electronics Ltd. Tel: 1 67 485 145 **Hungary:** EL SINCO Budapest Tel: 1 42 22 22 **Italy:** EL SINCO S.p.A. Tel: 02 88 41 61 **Japan:** TOYO Corporation. Tel: 3 (5668) 5900 **Korea:** S3P International Co., Ltd. Tel: 2 22 22 22 **Malaysia:** Test Engineering Sdn Bhd Tel: 3 414 3414 **Netherlands:** Heycoen B.V. Tel: 495 496 42 **Norway:** EL SINCO AS Tel: 02 12 12 12 **Portugal:** Acurion Electroacustica LDA. Tel: 1 9414087 9420962 **Singapore:** EL SINCO Singapore Tel: 784 1 15 **Spain:** Telco Electronics S.A. Tel: 1 531-7101 **Sweden:** TTS Tal & Ton S.A. Tel: 31 32 51 50 **Switzerland:** Dr. W. S. S. S. AG Tel: 784 1 15 **Taiwan:** B.O.C. Co., Ltd. Tel: 2-294-4930 **United Kingdom:** Thurby Thander Instr. Tel: 1 434 1 434 1

SEE US AT AES BOOTH # 841

count and switching power supply, the DA-38 needs no fan and remained cool even after 15 hours of steady use.

FEATURES & FUNCTIONS

Despite the apparent simplicity of the DA-38's user interface, there are times when a quick look into the manual is required, especially when accessing the "shift-key" functions. My favorite message is "StLn off," which is supposed to mean the audio monitoring during shuttle operations is turned off. My advice? Keep the manual handy. Fortunately for users, the DA-38 manual is clear and fairly well-written. The documentation also has several appreciated touches, including an appendix explaining how to interpret the DA-38's cryptic error messages. However, there are no pinouts given for the D25 connectors carrying the +4dB analog I/O, an omission that I hope will be corrected in the next printing. To make space, Tascam could delete the instructions on "Outdoor TV Antenna Grounding."

Probably the DA-38's most powerful feature is intermachine track copying, which combined with the digital patching function, allows users of single recorder systems to create a seamless "comp" performance from several takes. Alternatively, a track could be copied in the digital domain in order to create a "backup" before a difficult punch is attempted. Such operations previously required single-machine users to go from digital into the analog domain (and vice versa).

In the analog domain, the DA-38's digital patching feature provides the means to re-route connections to any track, a useful feature for anyone tracking on a DA-38 from a 2- or 4-bus board. Pro users will probably skip this function entirely and use traditional patching to access inputs.

Like the DA-88, the DA-38 also provides $\pm 6\%$ of pitch shifting; however, this range can be expanded to $\pm 18\text{--}12\%$ by controlling the DA-38 from an external clock source. Less important perhaps is the DA-38's new tuning feature, which provides A+40 (440 Hz) from an internal oscillator.

A much slicker and eminently more useful feature is the block error rate function, which quantifies errors



LEARN THE ART OF RECORDING

You can get the practical, real-world skills needed to successfully start your career as a recording engineer, producer or studio musician. •Hands-on approach, learning by doing •Previous experience not required •Complete 300 hours of training in less than 2 months •6 studios filled with the latest equipment •Small classes, excellent personal attention •Job placement assistance •Financial aid available •Low cost, on-campus housing



For free brochure, call or write today
1-800-848-9900 1-614-663-2544

THE RECORDING WORKSHOP

455-X Massieville Rd
Chillicothe, Ohio 45601

Ohio State Board of Proprietary School Registration #80-07-0696T

USE READER SERVICE CARD FOR MORE INFO

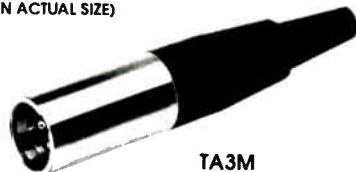
Switchcraft®

TINI Q-G® Miniature Connectors

These high-quality audio connectors are miniature versions of the full-size Q-G line. They are ideal for use with miniature microphones, wireless belt packs, instrument pickups, and anywhere space is too tight for conventional microphone plugs. Features are: positive latch lock, secure cable strain relief, integral flex relief and nickel finish. Available in 3 to 6 contact styles.



TA3F
(SHOWN ACTUAL SIZE)



TA3M

For Immediate Delivery and Competitive Pricing on the Tini Q-G, or any of Switchcraft's Audio or Video products, Call:



CAL SWITCH
California Switch & Signal, Inc.
[800] CAL-SWCH
225-7924

"Distributor
of the
Decade"

caused by tape dropouts or shedding, dirty heads, etc. Rather than merely depending on the PB Condition LED, the block error rate displays whether block errors are within acceptable limits. This also provides instantaneous user feedback on which brands of tape provide optimal performance.

Without a doubt, the DA-38's most enigmatic feature is dither switching. Essentially, this allows the user to enable (or disable) a dithering circuit on any track during recording. The theory behind the dithering process is to add a randomized signal to mask low-level quantization noise that occurs when inputs higher than 16-bits (18-, 20- or 24-bit) are stored on 16-bit media. As to the question of whether or not I'd use dither on the DA-38, the jury's still out. Tascam describes the net effect as "warmth." With dither, I heard an increase in clarity, particularly in lower-level signals, but this was accompanied by a slight upper midrange bump that seemed to bring percussive background elements—such as cowbells—up in the track. The real solution here is to experiment, and use it when you feel it's appropriate.

Anyone who's used a DA-88 already knows how the DA-38 transport performs: Both decks offer rapid, accurate tape handling, with fast multimachine lock-up times. The DA-38 transport seems quieter than the DA-88's, but this has more to do with the DA-38's no-fan operation than any differences in the transports themselves. Although both the DA-88 and DA-38 provide two locate points from the front panel, this number is too low, and five or six would be preferable.

Overall, the DA-38 is a winner. It packs most of the DA-88's features into a smaller package that operates quieter, sounds better and adds some new tricks. Best of all, the DA-38 retails at \$3,499, which is hundreds less than the DA-88. Sounds like a good deal to me...

Tascam, TEAC Professional Division; 7733 Telegraph Road, Montebello, CA 90640; 213/726-0303; fax 213/727-7635. ■

George Petersen knows a lot about MDMs; in fact, he coined the phrase six years ago. He's also the author of Modular Digital Multitracks: A Power User's Guide, the only book on the subject.

YOUR MUSICAL LEADER



THOROUGHbred
MUSIC INC.

The World's Most Dynamic Music Stores!

IN FLORIDA DIAL (813) 889-3874 OR FAX (813) 881-1896 MAIL ALL CORRESPONDENCE TO PO BOX 8009, TAMPA, FL 33674-8009

TAMPA

2204 East Hillsborough Avenue
Tampa, FL 33610

CLEARWATER

923 McMullen Booth Road
Clearwater, FL 34619

SARASOTA

7606 North Tamiami Trail
Sarasota, FL 34243

visit us on the world-wide web at <http://www.tbred-music.com/network>

1-800-800-4654
CALL TODAY FOR YOUR
FREE CATALOG!

USE READER SERVICE CARD FOR MORE INFO



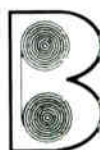
Master Distributor of Professional A/V Tapes, Data Media, Equipment & Accessories.

- 3M
- AKAI
- AMPLEX/QUANTEGY
- APOGEE Rep
- ASTC-Exclusive Rep
- AUDIC-PAK/ITC
- AUDIO-TECHNICA
- BASF
- BEHRINGER
- CELESTION
- DENON
- EDITALL
- ELECTRO-VOICE
- FOSTEX
- FUJI
- HARTKE
- HUGHES & KETTNER
- IOMEGA
- JLCOOOPER
- JVC
- MARANTZ
- MAXELL
- MRL
- PANASONIC
- PINNACLE MICRO
- QSC
- ROLAND/BOSS
- SENNHEISER
- SHURE
- SONY
- SOUNDTRACS
- TANNAY
- TASCAM
- TDK
- WINSTED

Shipped From Stock • Priced Right • Immediate Delivery



Call or Fax for **FREE CATALOG!**
Inquire about products & brands not listed.



Burlington A/V Recording Media, Inc.

106 Mott Street • Oceanside, New York 11572
516-678-4414 • 516-678-8959 Fax • US & Canada: 1-800-331-3191
E-mail address: burl2@ix.netcom.com

dbx BLUE SERIES SIGNAL PROCESSORS

dbx Professional Products was founded 25 years ago by design engineer David Blackmer (the "DB" of dbx). Although the company's first product was a high-resolution meter, it wasn't long before Blackmer put his ideas for decilinear VCA and RMS detector circuits into high-performance compressor/limiters and expanders. Years after its debut, the original dbx 160 comp/limiter is still revered by audio pros worldwide. dbx also became a major OEM supplier, licensing its noise reduction and VCA technology to dozens of leading companies.

Unfortunately, dbx fell into financial difficulties, and the various divisions of the company were sold. The OEM side was acquired by THAT Corporation (Marlborough, Mass.). The pro audio division was purchased by Harman, and several years ago dbx moved from its ancestral home in a quaint Boston suburb (Newton, Mass.) to the Orban offices in the San Francisco area. Ideal for Bedouin tribes, the nomadic existence is poorly suited for audio companies. Endless back-orders, problems coordinating offshore manufacturing, a shift toward low-end products and marketing campaigns emphasizing cartoonish gremlins rather than audio specs were either the results or symptoms of this period.

Two years ago, dbx settled in Salt Lake City as part of the Harman Music group. But rather than merely use the dbx name as a label on repackaged DigiTech and DOD products, the group formulated a long-term plan to differentiate the dbx name, move manufacturing into the modern Salt Lake City facilities, improve quality control and develop new technologies.

"We call it the new dbx," explains Rob Urry, the company's first engineering president since Blackmer. This could be mere marketing hype, but Urry is backing up his plan with action. Paint, metal and electronic manufacturing on all lines is now done in-house. The new Utah-designed engineered manufactured units—such as the dbx 1066—combine top performance with built-like-a-tank construction. The low-cost Project 1 Series is now being fitted with balanced I/O and internal power supplies, rather than the cheap-but-great-for-the-bottom-line wall warts that an entire industry has grown to despise.

But the biggest change at dbx is the Blue Series, a new line of high-end, no-compromise signal processors debuting at this month's AES. The three initial offerings in the series include a stereo compressor/limiter, 2-channel mic preamp and an A/D converter. A glance at the blue-anodized, 1/2-inch thick, milled aluminum slab on the front panel makes it clear that these aren't de-



Blue Series (top to bottom): 1605 comp/limiter, mic preamp and Bad Bay A/D converter.

signed for the casual user. "The concept of the series is to provide deadly accurate, sonically transparent performance," says Urry of the 2 to 200k Hz (± 3 dB) analog bandwidth of the Blue Series. "We're getting back to the heritage of dbx." Keeping with those lines, the Blue Series products are based around discrete modules, potted with low-thermal-resistance epoxy into cast-aluminum housings. Considering dbx's success in marketing VCA modules some years ago, the thought of licensing these modules is entirely possible, according to Urry.

The Blue Series mic preamp features the usual phase reverse, -20 dB pad and $+8$ VDC phantom power switching found on other preamps, but it adds coarse fine gain adjust controls (with a net range of $+5$ to $+65$ dB), impedance matching switching and dual VU meters. A transformer-coupled, discrete input stage makes use of dbx's M80[™] mic preamp module, which is designed to provide uncolored signal gain while adding high-frequency spectral enhancement with Spectrum, Detail and EQ defeat controls. Each channel's amplified signal is routed through two parallel high outputs (>30 dBm), capable of driving 1,000 feet of Belden 8541 cable for use as a splitter in live or studio applications.

Taking its name from the hallowed dbx 160 is the Blue Series 160S, a 2-channel unit based on the new V8 VCA module. Claiming to have a dynamic range of 127 dB (max signal to noise floor at unity gain) and a THD+N spec of $<0.007\%$, the V8 module is described by Urry as "a state-of-the-art implementation of Blackmer's decilinear topology." Features include VU meters switchable to input/output/gain reduction displays, stereo/dual-mono link, selectable hard-knee or dbx OverEasy[™] operation, adjustable PeakStop[™] limiting, manual attack and release controls or program-dependent time

BY GEORGE PETERSEN

constraints, and wide-ranging threshold, output gain and compression ratio controls. The output stage has the same high >30dBm drive capability as the mic preamp.

Analog-to-digital converters aren't known for being exciting, but the Blue Series A/D box (at press time, only known by the code name Bad Boy) is by far the most intriguing entry in the series. The unit is based on dbx's patent-pending Type IV conversion technology, a 27-bit process designed to capture the greatest essence of a signal by delivering 7 to 8 bits of headroom beyond the recording resolution. The Type IV module combines its hybrid design with various models of human hearing processes. The audio spectrum is divided into three parts: loud signals going into saturation, moderate signals in the linear range and low-level signals below the digital noise floor. Unlike other units with noise-shaping circuits—such as Apogee's UV-22 or Sony's Super Bit Mapping—the Blue Series A/D provides a choice of several noise-shaping approaches (including H-P dithered signal and A-weighted curves). Users can also create and store their own NS curves using a graphic EQ-style interface for constant noise-power noise shaping. Such options allow a user to select the noise shaping that sounds best on any particular project. Further, software updates and additional curves will be made available on the dbx Web site, able to be downloaded from a Mac or PC via the unit's serial port.

Other innovations of the Bad Boy converter include a modular input section that can be replaced as A/D technology improves; AES/EBU and S/PDIF I/O; multiple AES/EBU output ports; ADAT and TDIF outputs; selectable dithering and noise shaping on outputs; word sync I/O; switchable 8/16/20/24-bit output; 22.05/32/44.056/44.1/48kHz operation; and 44.1 to 22.05kHz sample rate conversion. The metering system is equally comprehensive: VU meters (analog input monitoring); LCD level monitoring of incoming digital signals (or post-conversion analog sources); digital phase metering; and a "metering history" function that stores several minutes of meter info so users can scroll through the data and note the timestamp of any anomalies. Pricing and further details on the Blue Series will be announced at the 101st AES convention in Los Angeles.

dbx: 8760 South Sandy Parkway, Sandy, UT 84070; 801/568-7660; fax 801/568-7662. Web site: www.dbxpro.com. ■

PRODUCE YOUR OWN AUDIOPHILE CASSETTES



"We chose the 4-track KABA Duplication System for its superior audio quality, ease of operation and high reliability...there is no competition for realtime duplication with the KABA SYSTEM."

Richard Bunuan,
Engineer
MOTOWN RECORDS

The KABA Duplication System is the most versatile, trouble free & cost effective duplication available. Call for your free production & specification report.

KABA

AUDIO / RESEARCH & DEVELOPMENT

Email: Kaba@kabaudio.com • <http://www.kabaudio.com>

800-231-TAPE • 415-883-5041 • KABAUDIO.COM

USE READER SERVICE CARD FOR MORE INFO

Everything You Hear is True.



MD3

Groove Tubes
World class tube mics and electronics,
featuring the new CL1s comp/limiter

E-mail: GrooveTube@aol.com

12866 Foothill Blvd., Sylmar, CA 91342 U.S.A. 818/361-4500 FAX 818/365-9884

"I used the MD3 for Taj Mahal's vocal and the MD1 on Eric's (Clapton) amp ...everything was fat, warm...perfect!"
JOHN PORTER, PRODUCER

"I've recorded a wide range of artists: Kenny Rogers, Dionne Warwick, Natalie Cole, Reba McEntire, Boyz II Men, Paul McCartney...It's the most flexible, best sounding mic I've ever heard."
MICHAEL LLOYD, PRODUCER

"The low end was tight, the highs crisp without being harsh, but most of all the presence was stunning."
EDDIE KRAMER

"When Jeffery Osborne heard your new MD3, he put his favorite U47 back in the car..."
CHRIS PAPASTEPHANOU,
MICHAEL SEMELLE STUDIOS

Phenomenal tube sound. State-of-the-art technology. For about half what you'd expect to pay...and that's the truth.



NEUMANN M149

TUBE CONDENSER MICROPHONE

It's been more than 30 years since Neumann released a new tube condenser mic (not counting the limited reissue of the U67 at the fall '93 AES convention). The new M149 Tube Condenser is something of a hybrid: it marries a vacuum tube to the transformerless FET 100 circuitry from the TLM50. Featuring the classic K49 capsule and grille from the Neumann M49, the M149 is a beautifully crafted, dual-diaphragm, multipattern mic that ships with a generous assortment of accessories.

Visually, the M149 is an impressive mic. It measures roughly 2.75 inches in diameter and just a hair under 8 inches long, and it weighs a stalwart 730 grams (around 1.6 pounds). The overall appearance of the mic, with its gray, satin nickel finish over the rotund brass body and grille, is attractively retro.

THE INSIDE STORY

The K49 capsule is a third-generation design evolved from the legendary M7 capsule, which was originally produced in 1932 and used in the Neumann U47 and M49 mics. The M7 made use of a PVC diaphragm, which was later replaced by mylar in the K47 capsule. The K49 offered tighter tolerances and replaced the K47.

The M149 diaphragms are 1 inch in diameter. Inside the grille, the capsule is elastically mounted (to eliminate structure-borne noise) above a cone-shaped surface that disperses any acoustic reflections from above that might interfere with the direct sound received by the capsule. The dual-layer wire mesh head grille is acoustically very open, maximizing high-frequency transmission. Although this design advantage theoretically comes at the expense of increased susceptibility to popping from plosives, I was surprised to note that the tendency was no more evident than with a U87—i.e., not problematic.

A miniature triode (model unspecified by Neumann) converts the high impedance of the capsule and adds 10 dB of gain to the audio. The tube is followed by an integrated differential amplifier in the output section of the mic. (The integrated amp merely balances the output; only the tube amplifies the capsule's output.) Neumann claims that this transformerless output driver allows cable lengths up to 300 meters without sound degradation.

One thing that I immediately noticed about the M149 was its impressively low noise floor and high sensitivity—a hallmark of Neumann mics in general. The M149's sensitivity is rated at a whopping 44 mV/Pa at 1 kHz into 1 kohm for cardioid mode (30 and 50 mV/Pa for omni and bidirectional modes, respectively). For comparison purposes, that's a few dB hotter than the U87A's output. Self-noise is rated at only 13 dB-A for cardioid mode (16 and 11 dB-A for omni and bidirectional, respectively). Subjectively, I found the M149 to be only a little noisier than a U87A at matched recording levels, which is amazing for a tube mic.

The only downside to such hot output is that the M149 offers no capsule pre-attenuation or output pad, a feature that studios operating at -10dBV nominal level might occasionally miss. On a brighter note, separate sliding switches are provided for changing the bass roll-off point and the polar pattern.



There is a choice of seven corner frequencies for the bass roll-off, ranging from 20 to 160 Hz in half-octave steps; the slope is 6 dB per octave below the -3dB down point. The 9-position polar pattern switch can be changed from omni to wide cardioid to hypercardioid to figure-8, with one additional intermediate step between each position. Together, the two switches offer incredible flexibility and exacting adjustment. Although I could switch the polar pattern without popping my woofers, switching to a less directional pattern did produce broadband noise—akin to being in the cabin of a commercial jetliner—at the mic's output for about five or six seconds. After that, quiet as a baby sleeping.

BY MICHAEL COOPER

essential tools for your studio

New Lower Price!

- 2 Independent 24-bit Stereo Processors (20 MIPS DSP Power)
- 600 Presets
- 63 Dynamic Effect Algorithms
- 2 Inputs & 2 Outputs (4 Balanced TRS)
- able to Process 1 True Stereo or 2 Mono Input Signals
- Seamless Switching of Effects

the ENSONIQ DP/2 the biggest selection of the best tools

When it comes to equipping your studio, your list of effects needs can grow pretty long. Probably longer than your budget. So make the right choice – one that will cover all of your signal processing needs from tracking to final mixdown. The DP/2 from ENSONIQ.

What makes the DP/2 so special? To start, it offers sixty-five great-sounding algorithms – the most complete selection available anywhere. Take a look at the list – you'll find all the tools you'll need to record and mix your music.

Use compression, de-essing, or EQ for recording voice-overs or vocals. A variety of speaker and amp simulations help you record guitar or bass direct and get anything from a natural mic'd amp sound to some serious "crunch." Shape drum tones or clean up noisy signals with a number of EQs, gates, and expanders.

An assortment of time-based effects (including chorus, flanging, phasing, delays, pitch shifters, and combination effects) are there to add richness and life to a track. And a selection of world-class reverbs lets you place each instrument in its own perfect "space" in your mix.

Not only does the DP/2 offer a complete range of processing functions; it has 600 well-crafted presets to handle every recording and live sound application you can throw at it. The presets are organized by type so you can quickly find what you need and get right back to your music.

The DP/2 offers two of our powerful ESP chips – 20 MIPS of industrial-strength DSP power that we use to create stellar-sounding effects. With two

D P / 2 A L G O R I T H M S			
Half Reverb	Tempo Delay	Guitar Amp 2	Expander
Large Plate	3.6 sec DDL 2U	Guitar Amp 3	Keyed Expander
Small Plate	8 Voice Chorus	Guitar Amp 4	Inverse Expander
Large Room	Flanger	Digital Tube Amp	Ducker/Gate
Small Room	Phaser-DDL	Dynamic Tube Amp	De-esser
Gated Reverb	Rotating Speaker	VCF Distortion 1	Rumble Filter
Reverse Reverb 1	Speaker Cabinet	VCF Distortion 2	Van der Pol Filter
Reverse Reverb 2	Tunable Speaker 1	FuzzBox	Vocal Remover
NonLinear Reverb 1	Tunable Speaker 2	Guitar Tuner 2U	Vocoder 2U
NonLinear Reverb 2	Parametric EQ	Pitch Shifter	No Effect
NonLinear Reverb 3	EQ-Gate	Fast Pitch Shift	Plate-Chorus
MultiTap Delay	EQ-Compressor	Pitch Shift-DDL	Chorus-Reverb
Dual Delay	Guitar Amp 1	Pitch Shift 2U	Flanger-Reverb
			Phaser-Reverb
			EQ-Chorus-DDL
			EQ-Flanger-DDL
			EQ-Panner-DDL
			EQ-Tremolo-DDL
			EQ-Vibrato-DDL
			EQ-DDL with LFC
			Sine/Noise Generator
			ADSR Envelope Generator
			Distortion-Chorus-Reverb
			Distortion-Roto-Reverb
			Wah-Distortion-Reverb
			Compressor-Distortion-Flanger-Reverb

inputs, two outputs, and two processors the DP/2 is equally useful as two separate mono in-stereo out effects devices or as a true stereo device utilizing both processors.

From its low-noise hardware design to its many new algorithms and presets, the DP/2's great sound has been refined from our DP/4 Parallel Effects Processor. The effects legacy that has become a fixture in top studios and live rigs around the world is now available in a single rack unit designed for your project studio and live performance needs.

Serious work requires a complete set of the right tools, each designed for the job at hand. For your recording needs, there's no better choice than the DP/2.

You can reach us at:
800-257-1439 documents to your fax
<http://www.ensoniq.com> on the Web
GO MIENSONIQ on CompuServe
800-553-5151 phone
610-647-8908 fax

ENSONIQ

LEADING THE WORLD IN SOUND INNOVATION

Yes! Grab a torque wrench and crank me out some info on the DP/2.

I'd also like info on:

ASR Series samplers DP/4+ effects processor MR-Rack expandable synth

K1 Series weighted action synths TS Series synths KS-32 weighted action synth

SQ Series synths 1682-ft. mixer

Name _____ Address _____ City _____ Phone _____ State _____ Zip _____

Mail to: ENSONIQ Corp., Dept. E-60
156 Great Valley Plaza, P.O. Box 9999
Malvern, PA 19355-0999

FIELD TEST

THE M149 SYSTEM

The M149 ships with an assortment of standard accessories. The sturdy EA170 shock mount will be familiar to TLM170 owners. Consisting of a brass framework with elastic suspension, it swivels slightly more than 180° and locks the mic firmly in place with a threaded ring—a bomb-proof arrangement for hanging the mic upside down and one that easily allows rotation of the mic through 360° about its vertical axis.

The M149 power supply is a new design specifically made for the M149. It's relatively lightweight and Spartan in de-

sign. About the size of a DI box, it features a power LED (but no on/off switch), an 8-pin DIN connector for supplying power to the mic and a male 3-pin XLR for audio output. The power supply is mated via a six-foot-long captive cable to an external transformer with two-prong AC plug. The supplied cable that connects the mic and power supply together is 10 meters long—plenty long for running to the control room during overdubs. As the M149's polar patterns are switched on the mic itself, however, remote adjustments are not possible.

The M149 also comes with a dust sock and the familiar foam-lined, wood-

en Neumann storage box. All of the components of the system fit into a larger, compartmentalized, foam-lined cardboard box. Optional accessories include an auditorium hanger, pop screen and windscreen. Additionally, as the mic's tube and associated circuitry are mounted on modular circuit cards, Neumann promises different optional tube modules for the M149 in the future—an intriguing prospect, indeed.

FREQUENCY RESPONSE

The omni pattern sports a smooth boost between roughly 6 kHz and 16 kHz, culminating in a 6dB boost at 10 kHz. Response drops off quickly above 16 kHz and is about 6dB down at 20 kHz. The response is very flat in the mids and bass to about 50 Hz and is down only 3 dB at 20 Hz. As you switch through progressively more directional patterns, the peak at 10 kHz flattens out, the low- and high-end responses drop off sooner (clipping at 500 Hz and 10 kHz for the figure-8 pattern), and an increasingly broad and heightened boost (about 4 dB in figure-8 mode) occurs around 3 or 4 kHz. The bottom-end response in directional modes is, of course, easily modified by using proximity effect in mic placement. However, the figure-8 pattern in particular is fairly nasal-sounding in the upper mids and noticeably less detailed up top. That may not be the best recipe for recording vocals, but it would probably sound great on an electric guitar cabinet.

CRITICAL LISTENING TESTS

Using a Millennia Media HV-3 mic pre-amp, I performed some subjective tests of the M149's off-axis response. Omni mode was quite uniform, except for a noticeable dulling of high frequencies at 90°-270°. In cardioid mode, strangely enough, high frequencies were much more attenuated at 120° than at the 180° null point, where they were affected very little. Grabbing the supplied polar response charts, my subjective impressions were confirmed—in general, one could characterize the polar response for both the wide cardioid and cardioid patterns as tending toward hypercardioid at 4 kHz and higher frequencies.

Those who have closely studied the Neumann U87 know that it tends toward the same characteristic, but to a much lesser degree. The reasons for this are purely acoustical. Like the M7 capsule used in the U47 and M49, the M149's back plates are "through-drilled" to let air through to the tuned acoustic cham-



Film

Video

Multimedia

Sales

Rentals

AudioTape

Large Inventory

Best Prices



by
QUANTEGY

9 locations - 24 hours a day
call toll-free

1-888-STEADI-9
(1-888-783-2349)

**STEADI
SYSTEMS**
FILM • VIDEO • MULTIMEDIA • SALES • SERVICE • RENTALS

Visit our website at <http://www.steady.com>

USE READER SERVICE CARD FOR MORE INFO

EQ

As you've come to expect a classic warm British sounding EQ because it is British. Maintaining that classic British EQ sound, the Allen & Heath engineers have developed a unique gain structure that is ideal for all types of audio from the most delicate classical material to crutchin' rock n'roll. Over the first 40 degrees of rotation the gain range is about 6dB. This is ideal for the subtle tonal changes required for acoustic instruments. The remaining gain of up to 15dB comes in thereafter and provides all the necessary power for signals requiring heavy equalization for color or correction.

HF	• 15dB	12-Hz	Shelving
MF1	• 15dB	500Hz to 15kHz	Peak/Dip
MF2	• 15dB	30kHz to 15kHz	Peak/Dip
LF	• 15dB	75Hz	Shelving

As is the case with all Allen & Heath Consoles, the GL3000 EQ sections have the essential EQ in/out switch. This gives the engineer the chance to A/B test at the sound check and eliminate unnecessary, or noisy, EQ.

MUTE

All Allen & Heath consoles have mute switches to turn the audio on each channel at better than 60dB of attenuation. Along with a host of other features, the mute switch can be linked to the AFL/Aux Send Master.

Pre/Post Fade Listen

At Allen & Heath we've always considered monitoring for the engineer to be absolutely mandatory. The GL3000 is no exception and supplements this with extensive AFL monitoring on the outputs. This is especially useful when you're monitoring your console up to do monitor.

MIC/LINE Switch

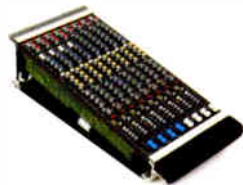
Both the mono and stereo input channels have balanced XLR and TRS inputs. The mic/line switch either operates as a source selector, with both inputs connected, or a 20dB pad for the XLR input, with the TRS jack left unconnected to facilitate balanced line level XLR inputs.

Routing

The GL3000 is a 8 buss live/recording console. The pan control adjusts the level between odd and even pairs. In Stage Monitor mode the L/R mix buss can be used to feed in ear monitors and the other busses can be selectively routed to give mix minus feeds to different performers.

As a Monitor Console

With the GRP/AUX Reverse switches pressed in the channels, Aux sends are routed to the subgroup faders as monitor feeds. Each monitor feed then goes through the corresponding subgroup meter above the faders or the subgroup meter/bridge through an insert point for the use of outboard processing gear, and out a balanced XLR output. When in reverse mode the mono out becomes the feed for the engineer's wedge mix. The Aux Send Masters become the engineer's means for monitoring each feed, and an AFL switch at each Aux Master sends a copy of the corresponding feed to the engineer's wedge. The aux master level controls the level of that feed at the engineer's wedge. This feed is post insert allowing the engineer to hear all the processing changes he makes on each wedge. The talkback section allows the engineer to talkback through each wedge and simultaneously mutes the engineer's wedge to avoid feedback during talkback. Be sure to place the console at the proper ground height to avoid engineer back strain.



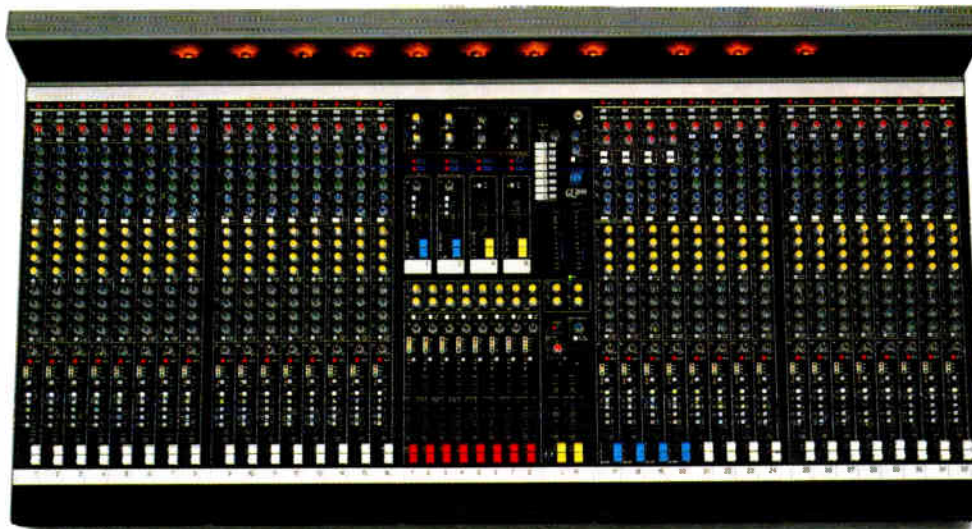
Expander

In addition to the SYS LINK™ system, the GL3000 may be expanded by 8 channels at a time, by simply connecting the ribbon cable and attaching the expander module to the end of the console. When attached, the expander looks cosmetically identical to the other 8 channel blocks of the console. The expander modules are available in the traditional 8 mono channels, or four mono and four stereo channels, and feature all the same facilities as the rest of the console.



Matrix

Extra stage fills, side and rear fills, mix minus feeds, video feeds, last monitor set ups, stereo recordings of the show, whatever you need, the GL3000 has a 10 by 2 matrix facility with outputs on faders and an AFL monitor fader.



Block of Consols



SYS-LINK™

Gotta gig and not enough channels to pull it off? The SYS LINK™, another Allen & Heath innovation is a great way to make sure you never get caught short. With syslink virtually any AEM mixer can be "bussed" in to another non-Plug and GL2 into a GL4 Plug a GL3000 into GL4, and so forth. The thing that's really cool is when two consoles are syslinked together, they are completely bussed together, all the aux sends, subgroups, left/right/mono, ALL TOGETHER, just like ONE CONSOLE. SYS LINK™ is a proprietary buss interconnect standard that is unique to Allen & Heath. Any number of conforming consoles can be linked together and operated as one large console. Every mixer in the Allen & Heath live and installation range supports the SYS LINK™ standard.

All stage monitors AFL/PFL buttons, FX and RA faders are common to the consoles in a SYS LINK™ system.

AUX Sends

Allen & Heath always give engineers the tools they need where they need them. Divided into two blocks of four and a block of four, the Aux Sends has its own preamp system with auto gain control and 10dB gain for the monitor. And just in case you need more aux sends, Pretty darn flexible!

GAIN (MIC PRE-AMP)

For years at Allen & Heath we've taken extreme pride in the purity of our Mic pre-amps. The Mic pre on the GL3000 comes from a long line of highly respected development from their touring consoles. Each input has a wide ranging gain control to match any input source. The TRS connectors are designed to accept balanced line inputs from stage submixers or inputs from stereo DIs, horns and FX.

Mic input range	+10dB to 60dB
Line input range	1u0dB to 40u0B

A simple yet extremely practical innovation we've come up with on the 3000, notice the high pass filter is before (not after) the input gain stage. This means the unwanted frequencies you use the filter to eliminate in the place never get to the pre amp. Why run those frequencies through the pre amp and try and take them out.

Fader

All input channels, Left and Right mix busses, and the subgroups boast smooth operation log law faders. Easy channel identification is on the write-on strip immediately below each fader. Each fader provides an extra 10dB of gain to the mix. A real advantage when dealing with low level sources.

Talkback

The GL3000 offers individual TB capability to each of the output at the press of a button. The talkback control adjusts the Mic level for the engineer's voice or sets an appropriate level for a signal generator (ideal for testing the monitors). In Stage Monitor mode use of any of the talkback switches automatically mutes the MONO output. This eliminates the possibility of feedback in the engineer's mix, one less source of feedback to deal with.

Performance Tools.

THE NEW GL3000 . . .
EIGHT SUBGROUPS FOR THE PRICE OF FOUR

Allen & Heath customers have gotten pretty spoiled over the past few years. Who can blame 'em? With performance, flexibility, expandability and designs ready for the toughest road use you can dish out, it'd be tough to get most of them to give us their GL series consoles. How many other consoles on the market can go out one night as front of house stage monitor console, the next and then get ready for tracking the next? And just because our consoles are unbelievably flexible, don't make the mistake of thinking we compromised on the sound. Our customers still rave

about our classic "British" sound. The GL3000 is the latest proof that we intend to keep you happy with performance at a price no other console company can match. Give one of our Performance tools a try, you deserve to be spoiled too!

Allen & Heath USA
8760 South Sandy Parkway, Sandy, Utah 84070
801.568.7660 • FAX 801.568.7662
customer@dbxpro.com
http://www.dbxpro.com



FIELD TEST

ber. The U87's capsule back plates are offset instead of drilled. It's a newer design that produces a more uniform off-axis response up to higher frequencies. What does this all mean in practical terms? When miking toms with the M149 in cardioid mode, make sure the cymbals are not directly overhead at the "obvious" 180° null point but off slightly to the side.

Next up were an A/B/C timbral comparison of the M149, an AKG C-12VR, and a newly reconditioned U87A, all on a male tenor vocalist in cardioid mode. The differences between the two Neu-

manns were most apparent in the vocalist's lower range, with the M149 lending a tighter bottom and considerably more open mids compared to the U87A. The M149 also sounded richer overall. The C-12VR was much fatter, warmer and more "focused" than both Neumanns (the C-12VR characteristically makes a source sound closer to the mic than most other pressure gradient mics do). However, the C-12VR also emphasized the upper bass a tad too much (at seven inches distance) on this particular vocalist. The M149 was also considerably less noisy and had a much hotter output than the C-12VR. I would put the M149 and the C-12VR on an

equal par for vocal applications—which one I would choose would entirely depend on the particular vocalist's timbral qualities (as always).

IN SESSION

On an alto female vocalist, the M149 in cardioid mode was warm and fat (even at one foot away), rich in pleasing harmonics and had an articulately detailed high end—absolutely gorgeous! The inherent high-frequency boost did emphasize the singer's sibilance to some degree—something to watch out for.

Next up was tenor sax, miked from two feet. In an A/B comparison with the M149, the C-12VR was the clear favorite with everybody in the control room and sounded much fatter and warmer. Still, the M149 had a beautiful clarity and was rich in harmonics and detail. The M149 sounded great, it's just that the C-12VR sounded even better for this particular instrument.

Miking maracas at one foot away, the M149 actually made them sound warm (warm maracas?!). The sound was detailed without being harsh, and was twice as "big" as a B&K 4011 made them sound.

On acoustic guitar, the M149's transient response was good but not great. The sound was also a bit veiled in the mids. I must confess my predilection for small-diaphragm mics on this instrument. Still, the M149's noise floor was impressively low.

CONCLUSIONS

During the short time I had the M149, its shining moments were on vocals—both male and female. The M149 lends a warmth to vocals without sounding cloudy or boomy, while its detailed high end articulates lyrics and subtle nuances with the sweetness and depth characteristic of a well-crafted tube condenser. The off-axis response in cardioid mode is not quite as uniform as that produced by Neumann's more recent capsule designs but is still quite good. The mic is amazingly quiet considering its robust sensitivity. The only downside to such high quality is that it does not come cheap. The M149 lists at \$4,750, but that's the price you pay for a truly world-class vocal mic.

Neumann USA, 6 Vista Dr., Old Lyme, CT 06371; 860/434-5220, fax 860/434-3148; Web site: www.neumann.com. ■

Michael Cooper is a producer, engineer and owner of Michael Cooper Recording in Eugene, Oregon.

SIMPLY THE BEST!



...and it just keeps getting better. **Simon Systems** has set the new standard of excellence in professional audio signal processing. The four channel **RDB-400 Integrated Direct Box** is simply the best direct box you can buy. This AC powered unit is based on a totally active (transformerless) audio path design with no insertion loss. And with features like variable line level output, variable attenuation trim, unbelievable headroom, speaker level input pad, active unbalanced/balanced outputs, front and rear inputs and output connectors, ground isolation switch, and toroidal power transformer, it's easy to see why so many professionals insist on it in the studio as well as on the road.



The portable single channel **DB-1A Active Direct Box** is based on the same design philosophy as its big brother. Its three-way independent power scheme* facilitates a unique design that simply blows every other DI away! In addition to features like line level output and no insertion loss, the DB-1A has rechargeable battery capability and automatic system power check.

*Simon Systems PS-1 Power Supply is recommended.

And for the ultimate in headphone distribution systems there is the **CB-4 Headphone Cue Box**. The CB-4 features four headphone outputs independently controlled by conductive plastic stereo power controls. The XLR input/output connectors allow numerous boxes and headphones to be connected to the same amplifier with headroom, clarity, and flexibility that cannot be achieved with active headphone cue amplifiers. A three-position switch selects left mono, right mono, or stereo mix, allowing for additional cue mixes. It's no wonder why the CB-4 has become a standard in the industry.



So the next time you think signal processing equipment, think like the pros:

Simon Systems - Simply The Best!®

Thanks for setting the trend:

Alabama • Fleetwood Mac • Whitney Houston • Tito Jackson • Jimmy Johnson • Kenny Loggins • John Mellencamp • John-Luc Ponty • Jeff Porcaro • Leland Sklar • REO Speedwagon • Universal Studios



SIMON SYSTEMS® ENGINEERING, INC.

707 Clear Haven Drive, Agoura Hills, California 91301 (818) 707-9980

USE READER SERVICE CARD FOR MORE INFO

Evolution doesn't occur overnight...

One Thousand

HOT HOUSE

It's been nearly a decade since we introduced our original S400, the **first** dedicated studio reference amplifier ever offered to the professional recording community. And although our new **High Resolution Control Room Amplifiers** are the result of a

slow, careful evolution from that first amp, we didn't totally re-design the circuits. We couldn't. Reason being, we couldn't make the straight wire much straighter. So we improved the quality of the wire, so to speak.

One way we accomplished this was to literally upgrade any point-to-point wiring by utilizing Teflon Kimber Kable. And not just in the obvious audio input and output paths, but even in the power supply! According to conventional wisdom, no pro manufacturer in their right mind would consider such an expense practical. But while convention and practicality might work for the accountants, it doesn't do much for our engineer friends. After all, **every** little detail is a contributing factor in the pursuit of clarity and definition. More important than our choice of exotic internal wiring was seeking out premium imported electronic components built to our audiophile specifications. First, we chose low ESR, fast-recovery, over-sized, European filter capacitors and custom-wound over-built toroidal transformers with a conservative duty cycle more than twice the industry standard. You can hear the resultant "stiffness" of the power supply and begin to understand why our power ratings seem so conservative. We also sought a better power MOSFET for our output section, and went with hand-matched lateral MOSFETS imported from Europe. Although more costly, they measured better than their predecessors from the Far East, and more importantly, **sounded** better upon careful auditioning.

Six Hundred

HOT HOUSE

In keeping with our audiophile perspective, the new **High Resolution Control Room Amplifiers** were designed as **dedicated** mono blocks when operated in the parallel mode... halving distortion, doubling the damping factor and current delivery, while increasing low impedance drive capability. The flexibility afforded by parallel, series and stereo formats allows for no-compromise universal matching of the amplifiers to any speaker's current, voltage, damping, and impedance requirements. On a technical note, we still avoid the use of **any** global feedback in our amp circuitry. We have always believed that although high-feedback amplifiers can yield excellent numbers on the test bench, the forced, harsh sound they exhibit when run at the edge or whenever asked to reproduce a valid musical transient that exceeds their capability, renders such designs woefully inadequate for studio use... producing a cluttered, congested, lifeless sound. And remember, specifications generated in a laboratory can't quantify or in any way measure the subtleties and inner detail of complex music. In order to capture the nuance of timbre as well as the true dynamics of a live source, we have concentrated our efforts on providing an amplifier with extremely fast recovery time, superb square wave performance, and exceptionally stable, wide bandwidth response into reactive loads. (We don't expect studios to drive resistors with sine waves.) The new **High Resolution Control Room Amplifiers'** graceful clipping characteristics, benign, almost purely second harmonic distortion products, and inability to latch-up and throw out DC, guarantee very non-fatiguing musical reproduction and excellent voice coil protection under the most demanding studio conditions.

So we urge you to **listen** to one of our amps. Or talk to someone who has. We **encourage** an A/B evaluation with any other amplifier. Lay down a few tracks, mix 'em up, and see if a higher level of speed, detail and resolution doesn't make the job faster, easier, and more enjoyable.

Oh yeah... and you have to admit they look gorgeous.

SEE US AT AES BOOTH # 462

*True control room reference monitoring
for those who can hear the difference*



HOT HOUSE
professional audio

275 Martin Avenue Highland, NY 12528
TEL 914-691-6077 FAX 914-691-6822

World's Best Value

GENELEC 1029A STUDIO MONITORS

In the past couple of years, Genelec monitors have risen from the relative obscurity shared by most audio products made in Finland to worldwide recognition. The high quality of Genelec's powered studio speakers has garnered industrywide praise and has earned the company coveted TEC Awards for the 1038 Tri-Amp and 1030 Bi-Amp monitors.

While the Genelec "sound" is popular, the company's quality products aren't exactly inexpensive: Systems can cost from \$2,000 to \$35,000. But Genelec's latest creation, the 1029A bi-amplified active system, is priced at less than \$1,100/pair. This two-way, 5-inch-woofer system goes down to 66 Hz. For those who need more bass, an optional \$700 powered subwoofer (Model 1091A) extends performance to 40 Hz.

One thing that immediately sets the 1029A apart from other Genelec models (aside from its price) is its molded aluminum enclosure. This approach can be risky from a manufacturing standpoint, as prototypes are difficult to fabricate and any miscalculations in the final mold are costly or impossible to correct. However, once the system goes into manufacturing, the result is an extremely rigid enclosure that is rugged, easy to assemble and requires a minimal number of parts. Additionally, a molded aluminum enclosure provides for a low-weight, high-strength combination with an optimal internal-to-external volume ratio that's unmatched by other cabinet materials. And the 1029A cabinets weigh only 12 pounds apiece, including internal amps, crossover and drivers.

The aluminum enclosure reduces costs, but Genelec went a step further by sharing parts between the 1029A and other Genelec models. The subwoofer's 8-inch driver is an optimized version of the one used in the 1092 and S-30; the 1029A HF section has the same tweeter as the 1030. All the 1029A/1091A drivers are powered by identical 40W amp modules (the 1091A subwoofer uses two 40W amps in a bridged configuration for a combined 70W mono output). Additionally, the 1029A/1091A are Genelec's first products that use almost 100% surface-mount electronics.

The 1029A enclosures are available in black or titanium-gray paint finishes. Physically, the 1029As are housed in 10x6x7.12-inch vented cabinets, with the front baffle forming the familiar Genelec DCW waveguide surrounding the 1/2-inch metal dome tweeter. A protective metal mesh covers each driver. The front baffle also houses the AC switch, status LED and a volume pot that controls the level of the entire sub-system, including sub(s), if installed.

The cabinet rear has controls for bass roll-off, bass tilt and treble tilt (all handy for room response equalization), as well as



two down-mounted, balanced, line-level 1/2-inch and XLR inputs/outputs (paralleled for connecting subs or multiple monitors). Inside, the cabinets have built-in magnetic shielding and threads for Oninimount wall brackets.

The 1091A subwoofer is housed in a 20.5x9x10.25-inch MDF enclosure (sorry, no aluminum cabinet), with the amp mounted on top. An internal DIP switch on the subwoofer amp module allows bass roll-off, which is probably unnecessary except in unusual installations where the sub's location creates too much bass, such as a corner placement in a glass room with a wood floor.

From a performance standpoint, the 1029A/1091A combination offers a maximum short-term peak SPL (with music) of 110 dB at 1 meter, which is loud enough to trash anyone's hearing in the near-field. Frequency response (with a single subwoofer) is rated at a respectable 40 to 20k Hz, ± 2.5 dB.

Due to their small size, the 1029As—with or without the 1091A subwoofer—seem well-suited to project studios, surround sound installations, broadcast booths/trucks suites, or as secondary reference systems in larger facilities. But a few questions, such as how they sound in general, or whether they'll translate to other Genelec systems, will have to wait until the monitors debut at this month's AES convention in Los Angeles.

Genelec Inc., 39 Union Ave., Sudbury, MA 01776; 508/440-7520; fax 508/440-7521; Web site: www.genelec.com. ■

BY GEORGE PETERSEN

TAKE A STUDIO-QUALITY DAT MASTERING DECK TO YOUR NEXT GIG.

There's no doubt you could use a DAT recorder. You would like a little flexibility too. The DATMASTER that delivers studio-quality specs, performance and sound for your studio and on the road. But you don't want to settle for a consumer-grade unit that may crap out on you at the worst possible moment. That's why you'll want the DA-P1 from TASCAM. It's the portable DATMASTER – perhaps the most durable, highest quality portable DAT recorder you can buy.

For the road, it has the features demanded by musicians and production professionals. Things like XLR-type MIC/LINE inputs with phantom power, a 20dB pad, and a versatile, easy-to-read display. An extended life 2-hour battery that recharges in just an hour and a half.



Unleash the DA-P1 in your studio, too. With a built-in S/PDIF direct digital I/O, it is easy to transfer to and from DA-88s, DA-38s, ADATs, hard disk recorders and other digital gear. You'll appreciate the multiple sample rate support (48, 44.1 and 32 kHz) and the DA-P1's next-generation A/D and D/A converters that deliver the same studio-quality sound as many of TASCAM's rack-mount DATs.

DA-P1
PORTABLE DAT

Standard accessories include a shoulder belt, AC adapter and battery – carrying case is optional. So if you could use a DAT for your studio and the road, pick up a DA-P1 and take it to your next gig. You'll get the best of both worlds. There's one waiting for you at your dealer today.

TASCAM

Take advantage of our experience.

MSRP \$1,899. For complete specs and information via TASCAM FaxBack, call (800) 827-2268 document #2-50.

THE PORTABLE DATMASTER

USE READER SERVICE CARD FOR MORE INFO

Worldwide Music

SOUNDSCAPE SSHDR1

MULTITRACK HARD DISK RECORDER

Remember when there were only one or two DAW units out there, and you couldn't afford them anyway? Times have changed; today, there are workable and affordable solutions for just about every application that you can imagine. There are a few units that stand out because of exceptional functionality, surprisingly low price, or because they perform one or another task extremely well. However, I was pleased and surprised to find a unit that excels in all three categories.

I've just spent time working with one of the more recent additions to the list, the SSHDR1 (SoundScape Hard Disk Recorder 1) from SoundScape Digital Technology Ltd. When you combine the extensive capabilities of the unit, its remarkable expandability to record as many as 128 physical (not virtual) tracks, its ability to work comfortably on less-than-stellar computer hardware, and its very reasonable cost, there is no shortage of value in this package.

SYSTEM DESCRIPTION

The SSHDR1 system consists of PC software (80386 with MS Windows

two input channels and four output channels, and provides the ability to mix eight physical tracks internally to the four outputs. (An 8-track

adds XLR balanced analog and AES EBU digital connections, at a slight extra cost. In addition, each rack box offers MIDI In, Out and



Figure 1: The Arrange window displays Parts, selected from the Take Directory. Track views can be expanded both horizontally and vertically.

Input/Output module is expected to be released by the time you read this.) Up to 64 virtual tracks can be accommodated by each rack

Thru connections.

A single half-length (8-bit) ISA format card connects one or two rack boxes to the host computer's ISA bus. Because the card carries only control and display data, and all audio remains within the rack units, either 8-bit or 16-bit slots can be used. The total number of tracks available will depend on how many open ISA slots you have in your machine; you can get up to 16 tracks per slot since each interface card handles two of the rack boxes. There are expansion chassis available for ISA card slots at a reasonable cost, so if you only have one slot open, you can use it to connect to such an expansion chassis and configure the maximum allowed eight cards and 16 rack boxes. This would give you 32 inputs, 128 physical tracks and 64 outputs (and 1,024 virtual tracks, but who's counting?).

The interface card is included with the first rack box bought (as is



Rear panel connections include analog, digital and MIDI I/Os.

3.1 or above) and one or more rack-mount (2U) boxes. The rack boxes each contain the entire audio path for eight tracks of digital audio, including the input/output connectors, analog-to-digital and digital-to-analog converters, system DSP and IDE hard drives (not included) for digital audio storage.

Each rack box is configured with

unit, and any eight of the 64 can be assigned to the physical mix. The analog inputs and outputs on the standard box are RCA unbalanced connections, switchable between -10 dB and +4 dB, with S/PDIF digital I/O. There is a Pro Audio Option available that

BY DAVE TOSTI-LANE

There's something you should know
about the 1996 National Electrical code...



(model ET1.5R shown)



Balanced power is recognized and approved.

(Ref: 1996 National Electrical Code Article 530 Part "G")

Yes. *Equi=Tech* did it. But we had lots of help from major motion picture studio engineers representing the audio/video industry on the NEC code-making panels. Studios of every shape and size are realizing the enormous benefits that balanced power provides. It's not just the hum and buzz that balanced power eliminates, it's the increased dynamic range and overall sound quality of the final product that invites the most praise. Our customers tell us about the great compliments they receive from their clients. One day, your clients could tell you the same great things. Visit us at the 101st AES Convention in Los Angeles at the L.A. Convention Center. November 8 - 11, 1996 booth #365.

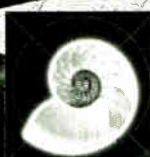
WELCOME TO AC POWER FOR THE 21ST CENTURY.

Equi=Tech Corporation P.O. Box 249 Selma, Oregon 97538 • Toll Free: 1/888/AC SOURCE

Tel: 541/597-4448 • FAX: 541/597-4099 • Internet: [hppt://www.equitech.com](http://www.equitech.com)

World Radio History

FUTURE DISC SYSTEMS



MOOTIE AND THE BLOWFISH
BOYZ II MEN
OFFSPRING
TRACY CHAPMAN
NINE INCH NAILS
WAITING TO EXHALE
SOUNDTRACK
ALL 4 ONE
CANDLEBOX
IMMATURE
BRIAN MCKNIGHT

MASTERING STUDIOS

HOLLYWOOD
 213/876-8733
 FAX 213/876-8143



FIELD TEST

the software, of course) for a purchase cost of \$3,250. Adding the Pro Audio Option brings the initial cost up to \$3,575, and adding a second rack unit to bring the system up to 16 tracks adds \$2,895 (\$3,220 with the Pro Option). There is also an option to convert the drives to removable drawer units for \$625 per rack box.

OPERATION

The SSHDR1 system uses the terms Take, Part and Arrangement to organize sound bytes. A Take refers to an actual sound on the drive; each physical recording is a separate Take. When part or all of a Take is used in a project, it is referred to as a Part; a single Take can be the source of many Parts. Parts are as-

cisely locating them during editing (up to 999 markers may be addressed in an Arrangement). Each marker can be named, and you can display a Marker Directory with the markers sorted by name, by position in the Arrangement or by ID number. A setting in the Arrange window preferences menu configures the SSHDR1 to play until it encounters the next marker and then stop, a useful feature for live performance cue playback.

To record, merely select a track and establish the beginning and end points of the recording, using left and right locators. Once you determine the needed length and position the locators, just click in the space between the locators and you are ready to record.

This is one area that I think might be improved. While it is understandable

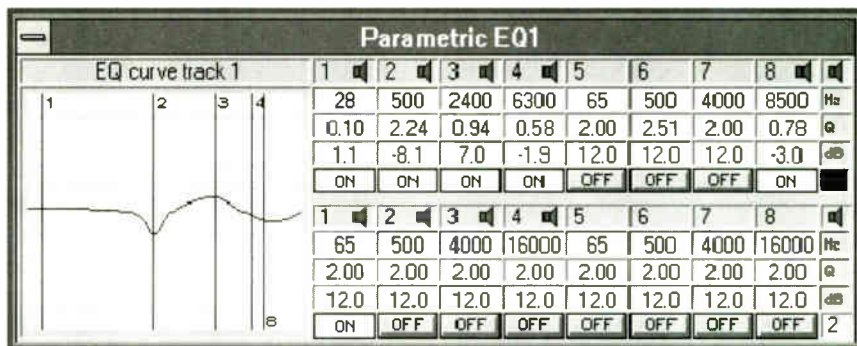


Figure 2: The EQ Setting window displays EQ parameters and a graphic representation of the track's overall EQ.

sembled in an Arrangement to make up a recording project. An Arrangement can include Parts that reference many different Takes on different drives.

To create an Arrangement, begin with the Arrange window (see Fig. 1), where you can drag Parts from the Take Directory. The Take Directory can also be expanded to show timing and location information about each Take. The views of tracks within the Arrange window can be expanded or reduced both horizontally and vertically to allow you to zoom in or out on a particular Part.

When editing, you can preselect different actions for each mouse key by using the icons on the tool page, which allows for very quick work when you are engaged in repetitive edits. In addition, keyboard shortcuts provide access to every tool. Scrubbing is implemented in two flavors; you can scrub just the single Part or all eight tracks at once. A Varispeed function allows you to adjust the playback speed by $\pm 10\%$.

The SSHDR1 boasts a nicely implemented marker system that allows dropping markers "on the fly" or pre-

from a programming standpoint to want to be able to pre-allocate the disk space used for recording, it can often be advantageous to be able to continue recording beyond the planned point, particularly when recording improvisations.

Of course, the flip side to this is that you know that you have enough disk space to record for the time you have allocated, thereby avoiding the frustration of having your recording system suddenly stop when it runs out of disk space!

Equalization is handled in a unique way. Equalizing multiple tracks takes an enormous amount of DSP power, especially if you elect to provide multiple bands of fully parametric EQ. DSP resources may be eked out by means of a "non-real-time" system, but EQ that must be processed back to the data file before it can be auditioned is of limited value. The procedure just takes too long to allow experimentation. Soundscape chose to offer the potential for eight bands of fully parametric EQ on each track, but there was no way to make this

Featured at
AES '96
Los Angeles, CA

Humanbooth

(hyoo' manbooth) : n

a concept
developed by

Full Sail sm **real world**
education sm

www.fullsail.com

at the turn
of the 21st century

1-800-226-7625

whereby gifted

Media Moguls of Tomorrow

gather with

Established, Like-Minded Individuals

to exchange

Information

about

Their Chosen Field of Dreams.

school of

AUDIO
DIGITAL MEDIA
Film video

3300 University Blvd.
Winter Park (Orlando), FL 32792

STEP-BY-STEP ASSEMBLY
INSTRUCTIONS for a Humanbooth



A. Manufacture an
ABILITY
to succeed

B. Create a
DESIRE
to GET THERE
FROM HERE



C. DETERMINE an
ATTITUDE
that fuels **ALTITUDE**

D. Mix with EXTRAORDINARY
TRAINING



x 26

We're taking the money that's normally spent on a display booth and we're investing it in our greatest assets - our students.

Some of them have been selected as winners of a school-wide contest to represent Full Sail (all expenses paid) at this year's AES Show. Not only are they our finest representatives but they're also people that you'll want to hire.

And, by the way, you'll recognize them instantly. They'll be the ones wearing the great altitudes.



HUMANBOOTH FULLY ASSEMBLED
(enthusiasm included)

we're not the experts... you are.



Grandma's
music & sound

albuquerque, new mexico

<http://www.grandmas.com>

1-800-444-5252

USE READER SERVICE CARD FOR MORE INFO

Intensive Audio-Video Training



Hands-On Training • Financial Aid Available • Dorm Housing
20 Week Recording Engineer Program • 10 Week Video Editor Program
11 Studios in 12,000 sq. ft. training facility filled with the latest equipment
Outstanding Job Placement Assistance

Call for Brochure

818-763-7400

Internet: <http://village.ios.com/~larw>

5278 Lankershim Blvd. • N. Hollywood, CA 91601



FIELD TEST

many bands fully active in real time on multiple tracks, so they settled on a compromise that seems to work quite well.

Pressing the "E" key brings up the EQ Setting window, shown in Fig. 2. When this window is up, SSHDR1 will play back only two tracks at a time. Each track can then be auditioned as you set the EQ, using the fully parametric controls available—you hear the changes you make in real time on the selected track. You can turn on from one to eight EQ bands for each track, and left and right pairs of bands are linkable so they track together. A handy graphic representation of the track's overall EQ appears onscreen. Once you have auditioned the EQ on each track, close the EQ window and engage the EQ tool. Click on a Part that is assigned to a specific track, and it will be processed to a new Take using the EQ you set up for that track in the audition step.

EQ can be set up for all eight tracks while auditioning using the EQ window, so you simply select all the Parts you want to process on all tracks and the EQ tool will process each track. If there are a lot of Parts to be processed, this may be a good time for a coffee break! Seriously, processing can take a bit of time, but it is not excessive. For example, it took about 5-1 seconds to process a stereo 30-second Take with eight bands of EQ on each channel.

Also available as optional processing "plug-ins" are a Time module and a Reverb module. The Time module offers Pitch Shift, Time Compression and Expansion, and Sample Rate Conversion. I used the Time module functions extensively to modify a series of bells both as to duration and pitch, and also successfully shortened a prerecorded cue containing orchestral music and voice-over. I detected none of the artifacts that are often introduced into a signal when time compression or expansion is applied.

The Reverb module was not available at the time I was creating my production. It became available for testing near the deadline date for this article, and in the limited trials I was able to perform, it seemed to be a very clean and natural-sounding implementation. By the time you read this, the 32-bit version should include a preview function.

THE REAL-WORLD TEST

Now that we have some of the obligatory numbers and details out of the way, just how the heck does the thing work? Well, it works quite nicely. I had the unit

for an extended evaluation period and was able to use it in an actual production to get a good idea how it functions under real-world pressure. I used the SSHDRI alongside a much more expensive and well-known Macintosh-based DAW to build and run the sound design for a theatrical production of Eugene Ionesco's *The Killing Game* at Seattle's Broadway Performance Hall for Cornish College of the Arts. This show was a real test for both DAW units, as the sound was treated almost as if it were a character in the show. Many of the scenes depended heavily on sound cues, and the sonic texture of each piece was used to "set the scene." There were more than 100 cues, many of which required split-second timing that, due to audience reaction and the actors' pacing, changed with each performance. Several sequences in the show involved up to ten cues within 30 seconds.

Because of its nearly instantaneous playback facility, the SSHDRI proved to be one of the best units I've had the chance to use for this application. When you hit the Go button, play begins *now*, not "in a bit." The unit's ability to play from marker to marker allowed my assistant designer and me to set up markers at the exact beginning of each cue, knowing that we could fire each cue and not worry about it playing into the next one. The ability to name each marker and see that name in the timeline at the top of the Arrange window allowed us to easily identify where in the script each cue was located. We found ourselves using the SSHDRI for all the cues in the show that required critical timing, because the other "more sophisticated" system was unable to provide the instantaneous reaction time we needed. The excellent sound quality of the converters in the SSHDRI (A/D conversion is 16-bit sigma delta, 64x oversampled; D/A conversion is 18-bit sigma delta, 64x oversampled) and its balanced +4dB outputs (with the Pro Audio Option installed) made it easily the sonic equal of the larger system.

The truly remarkable part of this is that, because of other commitments, the only computer I had available to serve as the host for the Soundscape unit for the show was a creaking and groaning 386/SX25 with only 4 MB of RAM and a 100MB hard drive. It worked just fine. In fact, the only real difference between running the system on that machine and on my Pentium 100 is the speed of the screen redraws and the loading time for the

ROCKET



L A B

The
Future
Unveiled



Mastering



Audio Restoration



Enhanced CD



San Francisco (415)495-2297

USE READER SERVICE CARD FOR MORE INFO



SPEIR MUSIC CO.



800•219•3281

510 S. Garland Ave. Garland, TX 75040

GUARANTEED BEST PRICES!

New/Used • M-F 9-7, Sat. 9-6

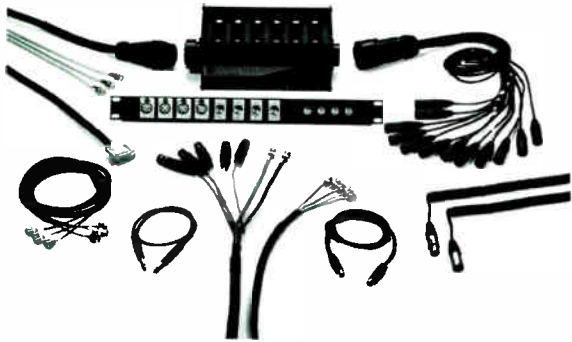


All Major Credit Cards



Customer Service 214-494-1601

More Reasons to Choose Gepco



Distributor for:

- ADC
- Kings
- Neutrik
- Switchcraft
- AMP
- EDAC

...and many more

Cost-effective. Quality Crafted. Your choice of cable type, length and color from our extensive selection. Delivered to you on time. Gepco manufactures custom cable assemblies, audio and video snakes, breakout boxes, panels, patch bay wiring harnesses, direct boxes and prepackaged cable assemblies for point-of-sale display. All Gepco cable and custom products are made in the U.S.A.

1-800-966-0069

Ask your Gepco sales representative for a free catalog
Cable, Connectors and Custom Products

SEE US AT AES BOOTH # 118



GEPco INTERNATIONAL, INC. 2225 W. Hubbard, Chicago IL 60612
Phone: 312-733-9555 1-800-966-0069 Fax: 312-733-6416

(USE READER SERVICE CARD FOR MORE INFO)

FIRST CALL

Why do world-class producers and studios call us first for digital transfers, digital editing, audio rentals and service?

WE'RE THE DIGITAL SOURCE

DAT, Sony 3348/24, Mitsubishi X-880 and X-86HS (96 kHz) mastering decks—we own 'em all. Equipment breakdown? Call us for a "Special Emergency" low-rate rental replacement.

DIGITAL MASTERING, EDITING, TRANSFERS

All-digital multi-format suite with Harmonia Mundi Format Converter, Sony digital editor w/EQ.

WE'RE DIGITAL EXPERTS

Call anytime for tech support, whether you rent from us or not.

WE'VE GOT WHAT YOUR RACK NEEDS

Lexicon & AMS, Neve EQ... the latest digital and analog gear, plus hard-to-find "classics."

WE NEVER CLOSE

That's right—24 hour service.

WE SHIP WORLDWIDE

DIGITAL ASSOCIATES d/b/a

You're never too far to go digital.

AUDIOFORCE

SOUND RENTAL LOGIC

630 9th Avenue • Room 1012 • New York, NY 10036

For your **FREE** rate card, call **800/847-4123** toll free in USA
(212/262-2626 in NY State) or fax us at 212/262-2632.

initial program start-up. This indicates to me that there would be no problem at all running this system on very inexpensive hardware. For example, a 486/66 or a Pentium 75 PC could serve as excellent platforms for the system, which could translate into large savings in hardware costs.

I had some concern initially that the system would prove difficult to learn, but I would expect any new user to be happily recording and editing away within a couple of hours, and moving along quite nicely within a few days. One of the really powerful features of the program is the degree to which you can access functions with keyboard shortcuts, and the ability to have multiple editing tools available on the mouse.

During the time I had the system, I was able to take it with me to a conference and install it in a different computer for some demo sessions. Since the hard drives are integral with the rack unit, the entire system—including the rack unit, cables, computer card and manual—easily fits into a single 6U flight case. Setup was uneventful, and once the software was loaded in the new machine, along with the saved Arrangement files, the system was ready to go.

In summary, I found the SSHDRI a very interesting unit. I was particularly pleased with its performance as a theatrical sound editor and playback source, and that was before the addition of the excellent optional Reverb module, the soon-to-be-released PQ editing module, and the expanded input/output options. I was not alone in my approval; since finishing the project, my assistant designer has decided to purchase a Soundscape SSHDRI. Given that I could purchase two of these units and the computers to run them for the cost of upgrading my other system to its newest level, I'm pretty tempted myself, especially in light of Soundscape Digital's policy of free software updates for registered users.

U.S. Distributor: Soundscape Digital Technology Inc., 4478 Market St., Suite 704, Ventura, CA 93003. 805/658-7375; fax 805/658-6395. E-mail 74774.1337@compuserve.com. ■

Dave Tosti-Lane is a theatrical sound designer currently serving as chairman of the Performance Production department at Cornish College of the Arts in Seattle.



LAFONT

Film Mixing Consoles & Processing

SPENDOR
Powered Reference Monitors

SASCOM MARKETING GROUP

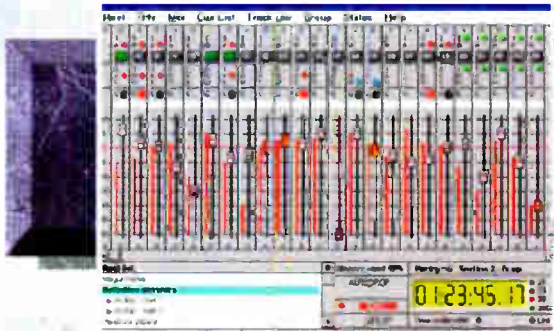
www.sascom.com

PH: 905.469.8080 FAX: 905.469.1129



AUGAN

24 Bit Digital Audio Workstation



OPTIFILE

Console Automation

TL Audio

Tube Processing & Consoles

**AES '96
BOOTH 763**



SOUND CHECK

COMPUTER CONTROL AND SOUND REINFORCEMENT SYSTEMS



PHOTO: DAVID SCHEIRMAN PHOTO MANIPULATOR: MIKA CHISAKI

Like it or not, computers are now an inextricable part of our everyday lives. The widespread availability of economic computing power in the form of the personal computer (PC) has not only changed the traditional workplace but has also affected the way that musicians, filmmakers, writers, photographers and other artists do their work.

As a science-based art, professional audio adopted the PC quite readily, though the relatively small size of the industry has limited the number of computer applications developed specifically for audio. Nevertheless, recording studios and post facilities have provided a stable market for PC applications such as time-based sequencing, editing and machine control. Automated mixing consoles have emerged as a dominant technology in music mixing and film/video post. And the market success of digital audio workstations is fueled by the availability of fast, affordable PCs.

For a number of reasons, the sound reinforcement industry tends to lag behind in the implementation of computer-based technology. In fact, the initial impetus to develop computer-based technology for controlling sound reinforcement systems first came from outside the industry. Architects and builders first began using automated systems to control and monitor elevators, air-handling equipment, security and other functions. Nearly 15 years ago, some forward-thinking system designers decided that automating the control of public address systems was a logical next step.

Pioneering sound system designers first sought solutions from vendors of available audio equipment and, in response to this challenge, Innovative Electronics Designs created the industry's first computer-controlled sound systems in 1984.

Very large sound systems—such

as those designed for airports, convention centers and other public venues—include as many as 100 or more power amps. Driven by the requirements of contractors and other high-volume customers, major manufacturers began to explore the potential uses of computers for remote control and monitoring of power amps. But as manufacturers typically designed and implemented automated systems for use with their own products, these proprietary solutions were generally incompatible with other manufacturers' products.

Today, "intelligent" power amplifier control and monitoring networks are available from leading vendors like Crest (NexSys™) and Crown (IQ™) with experimental systems in development from other firms like QSC (Network Audio Systems™).

System capabilities and control architecture tend to reflect the developer's particular interests. For

—CONTINUED ON PAGE 214

BY DAVID SCHEIRMAN

**TOUR
PROFILE**

ELVIS COSTELLO & THE ATTRACTIONS

The "All This Useless Beauty" Tour

“They can do a lot of things with technology now,” Elvis Costello told *Mix* in August '95, “but they haven’t found a way to broadcast *animal magnetism* yet, which is a big part of our show. In fact, it’s probably the main part. That’s what people come for, the animal magnetism part.” At that time, Costello was getting ready for a worldwide satellite broadcast, performing songs from his then-current album, *Kojak Variety*. Since then, he’s made another album and spent a lot of time on the road, proving himself right.

This summer, Elvis Costello and The Attractions were out promoting last May’s release, *All This Useless Beauty*, an album more singer/songwriter-ly in approach than many previous Costello Attractions efforts. The lyrics are as dense and poetic as on other albums, but the music is somewhat less wild, and arrangements feature Steve Naive’s keyboards. So, the songs lent themselves beautifully to the first leg of the tour, on which Costello and Naive went out as a duo, playing a handful of clubs around America. Those nights showcased pared-down, pretty versions of older songs like “Accidents Will Happen” and “Red Shoes,” a new, slow piano version of “Temptation” and a solid selection of the new songs. These were very friendly shows—chatty but



PHOTOS STEVE JENNINGS



Front-of-house engineer David Zammit (l)
and monitor mixer George Barnes

electric, as Costello treated his core fans to some unforgettable vocal performances. And during these shows, Costello made a point of letting his audience know that he’d be back around later in the year, with the full band.

The full-blown tour began in June and, like the Costello-Naive

shows, included a lot of new arrangements—new ways of playing some of the old songs up against the new ones. “Pump It Up” was transformed into a sort of Chuck Berry-New Orleans number, with Naive on accordion. And for part of the set, the rhythm section left the stage to Costello and Naive, and 1978’s “Party Girl” became a quiet, bittersweet wonder. “Compared to previous tours with this band, it’s much less frantic,” says front-of-house engineer David Zammit. “It’s not quite as violent musically—partly because of the new material but partly because everybody’s a bit more grown up.”

Zammit and monitor mixer George “Barney” Barnes use an extensive rig provided by Electrotec of Westlake Village, Calif. Zammit mixes on a

—CONTINUED ON PAGE 220

BY BARBARA SCHULTZ

TOUR PROFILE

THE SEX PISTOLS' FILTHY LUCRE TOUR

Why Ask Why?

Overheard outside the Shoreline Amphitheater, Mountain View, Calif.: "I just figured it's a once-in-a-lifetime thing to see the Sex Pistols. Something to tell the grandkids about." That's how it seemed to us, too. No matter how mercenary their stated reasons for reuniting, and no matter the pointlessly insulting reports about the band's unyouthful appearance (really? they've aged since the '70s?), *Mix* wasn't about to miss it.

The show we caught at Shoreline took place in August, close to the end of the U.S. leg of a tour that began in early summer with a number of European festival dates. Audio and lighting gear for the U.S. tour was provided by A-1 Audio and Lighting of Los Angeles. The company also sent out tech Kory Carter, who does double duty assisting the tour's front-of-house engineer, Alan Perman, and monitor mixer Harry Netti.

"Now that we're in America," Netti says, "it's such a pleasure to have your own touring rig with you. It's the same every day, and you know what you can do and what you can't do with it—unlike a festival situation, where ten other bands have used the gear that day. I don't mind a challenge, but that's one of the challenges I'd rather not happen."

The A-1 setup includes 24 EAW KF 850 and eight SB 850 speaker cabinets. Perman mixes the Sex Pistols on a "vintage" Yamaha PM3000 console "with antique woodwork around it. Be sure to get a good look at it," he laughs, "because this could be the last chance you have." He uses 16 channels for the Sex Pistols, and, he quips, "that includes a spare. I have to stretch it to that.

"The best way to mix the Pistols is just rock 'n' roll," says Perman, whose experience includes FOH mixing for much of Live Aid and years of touring with acts such as Duran Duran, David Lee Roth, Van Morrison and the Boomtown Rats. "It's just a rock band. Don't try to do anything fancy. Just mix the bass guitar, the lead guitar and the drums. The drums have always been the basis for their real sound, and everything else is icing on the cake." So, Perman isn't big on effects: He has a Yamaha REV5 and a pair of SPX1000 reverbs, which he uses sparingly on the kit and on



PHOTOS: STEVE JENNINGS



Left to right: monitor mixer Harry Netti, front-of-house engineer Alan Perman, A-1 tech Kory Carter

Johnny Rotten's vocal. His control rack is an EAW system with digital processing and Klark-Teknik graphic EQs for house left and right. The mic selection is a straightforward mix of Shure SM57, Beta 58 and SM98s, plus a UHF wireless system (also from Shure) for lead vocal.

Netti, whose regular gig is mixing monitors for Natalie Cole, uses a Ramsa 840 console—40 channels with 18 sub-

KF 850s.

BY BARBARA SCHULTZ

—CONTINUED ON PAGE 222

Meyer Sound's New Self-Powered Loudspeaker Series



Just add signal and mix well.

The new, award-winning Self-Powered Series from Meyer Sound revolutionizes the design of traditional loudspeakers by integrating the amplifier and control electronics into the cabinet itself. The result is not only a better sounding loudspeaker, but a **complete audio system** that eliminates the need for amp racks, and requires less cabling, truck space, and set up time than traditional loudspeaker systems. When equipped with the optional *Remote Monitoring System*[™] (RMS), the user can monitor the status of each unit during performances. Additional benefits found in every cabinet include *True Power Sense*[™] limiting (the actual power used by the driver is measured and used to determine when limiting is required) and *Intelligent AC*[™], which performs auto-selection from international voltage ranges. All of this assures you of a well-protected, user-friendly system. But don't just take our word for it, ask Blackhawk Audio, the Bushnell Auditorium, La Boom dance club, or any of the hundreds of other Self-Powered Series users.

With Meyer Sound, you only have to listen.



World Radio History

SEE US AT AES BOOTH # 231

Call us at (510) 486-1166, or visit our WWW site:
<http://www.meyersound.com/>

—FROM PAGE 210, COMPUTER CONTROL

example, Ivie, Micro-Audio and Oxmoor specialize in gear that can be programmed by a portable computer, which is then disconnected and removed from the system. The system may then be monitored and updated via a modem link. Thus the designer or authorized contractor can make changes, while unauthorized persons do not have the same access to system controls.

PC APPLICATIONS IN LIVE SOUND

Despite the mixed success of early computer-controlled sound system products, computers can handle much more than simply controlling amp channels. PC functions in sound reinforcement systems include:

- **Mix automation and preset recall.** Automation features to control bus sends, equalization and other signal processing can be found on mixing consoles from Cadac, Euphonix, Recall by Langley, Solid State Logic, Soundcraft and Tactile Technologies. Software products such as S.A.C. (Software Audio Console) emulate traditional console functions in software.

- **Matrix-switching for audio signal routing.** Automated rerouting of audio signals is a common requirement in theme parks and production shows where consistency is important. Equipment from LCS (Level Control Systems), Richmond Sound Designs and Real World provide this capability.

- **Playback equipment control.** Computer systems are fundamental to the automated remote control of DAT players, EPROM sound effects triggers, laserdisc players and other storage devices that must be synced to timecode cues. Such systems are common in major production shows in theme parks and other choreographed shows.

- **Audio measurement tools.** PCs have been used as building blocks in a range of real-time analysis and other measurement systems from firms like Apogee, Audio Precision, Brüel & Kjaer, JBL, Meyer Sound Labs and Techtron.

- **Speaker system controllers.** Several loudspeaker manufacturers have developed computer system interfaces to control system drive components. Examples include the TOA DacSys, Yamaha 2040 and EAW MX8000 systems, and upcoming products from Dynacord and Meyer Sound Labs.

- **Monitoring and control of wireless mic systems.** AKG, Beyer, Sennheiser, Vega and others offer software applica-



PHOTO: GARY GERSHOF/RETNA

MEDIAMATRIX TECHNOLOGY ON THE ROAD WITH KENNY G

BY ROD JAMES

Al Tucker has served as the "audience monitor mixer" for Maryland Sound Industries of Baltimore since 1973. Of course, the more common term to describe his duties is "sound engineer." But Tucker takes issue with the implication of that title.

"You see concert programs in the theaters, or credit rolls after an awards show, and there is always a 'sound engineer' and a 'monitor mixer' listed," he explains. "There seems to be the notion that the monitor mixer isn't a real sound person. But both are, in fact, mixing monitors. It's just a question of who's listening and where." This respect for both ends of the snake provides a clue as to why Tucker has thrived on the touring scene for more than 25 years.

Tucker has always been willing to experiment and use new technologies. Such is the case with a Peavey MediaMatrix system. Tucker first toured with a beta version that ran the house system for the U.S. leg of a 1994 Kenny G tour.

The MediaMatrix system includes a mainframe, a user-specified number of DSP boards and software, all connected to a digital interface for input/output connections. This allows the system designer to create, maintain and modify a complete signal processing system of enormous size with a cut-paste-click user interface.

"MediaMatrix allows the P.A. system to be a chameleon. It can 'morph' into anything you want to do in any

situation," Tucker says. "It's not so much new controls, but a new way to manage the controls."

The entire DSP system—situated at the house or monitor mix position, or both—can be built via the mainframe right on the computer screen, with a universe of devices available in multiples. Graphical hierarchy on the screen allows building of a large, complex system in an organized manner. The system can be broken down into subsystems, layered, and linked to a master control screen.

"For example, take a typical arena system with left and right clusters, and let's look at the left cluster. It faces an audience, with people close, far away, off to the sides, up, down and so forth. It has a lot of different throws and distances to cover," Tucker explains. "With MediaMatrix, you can break the cluster down into subgroups, say, forward long-throw, forward near-field, sides long-throw and sides near, and create tailored processing far beyond amplifier attenuation to meet each of those needs. Hit the Compile function, and it's ready to go."

Tucker established a main control screen, with the FOH system broken down into subwoofer, low-frequency, mid-frequency and high-frequency sections for left and right clusters. The screen included left and right level meters for each section. He also established eight control blocks (pink noise and sine wave test sources, sys-

—CONTINUED ON PAGE 222

*“Audio Signal Processing that isn’t gated,
divided, or limited by convention”*



DPR SERIES COMPRESSORS/DE-ESSERS



DPR SERIES NOISE GATES



FCS SERIES PARAMETRIC EQUALISERS



VARICURVE™ EQUALISER/ANALYSER SYSTEM



FDS SERIES FREQUENCY DIVIDING SYSTEMS



OMNIDRIVE™ LOUDSPEAKER MANAGEMENT SYSTEMS



MSR SERIES ACTIVE SIGNAL DISTRIBUTION



TCS SERIES TIME DELAYS



FCS SERIES GRAPHIC EQUALISERS



BSS Audio



BSS Audio, Linkside House, Summit Road, Potters Bar, Herts., EN6 3JB, England • Tel: +44 (0)1707 660667 • Fax: +44 (0)1707 660755
Harman Pro North America Inc, 1449 Donelson Pike, Nashville, TN 37217, USA • Tel: +1 (615) 399 2199 • Fax +1 (615) 367 9046
WWW: <http://www.bss.co.uk>

H A Harman International Company

USE READER SERVICE CARD FOR MORE INFO

USE READER SERVICE CARD FOR MORE INFO

World Radio History

All Manufacturing
in Our Plant...
Since 1977

EUROPADISK, LTD.

- **COMPACT DISC**
- **Cassettes**
- **Vinyl Records**
- **Graphics**
- **Mastering Studios**



BULK CD REPLICATION

Disk Price (Bulk)		Set-Up Cost vs Turn-Around-Days*			
Quantity	Price Ea.	3 DAYS	5 DAYS	10 DAYS	15 DAYS
200 to 499	\$9.95	\$1,100	\$850	\$500	\$450
500 to 999	90	1,000	775	375	350
1,000 to 1,999	80	900	625	200	100
2,000 to 4,999	72	725	250	no charge	
5,000 to 25,000	.65	no charge	no charge		

From your CD-R, replicated CD, or 1630 master & label film. Prices include 2-color CD label (1-color on 999 or less).

* Business days, day "0" is day of receipt of materials in acceptable form. Jewel Case & Shrink-Wrap Packaging, \$28; \$25 @ 5,000 & over CD-Audio Premastering: Sonic Solutions PMCD Master and Reference CD for your approval - \$125 to 25 min.; \$140 to 63 min.; \$150 to 74 min.

RETAIL-READY CD PACKAGES with Full Color Graphics

CDs in Jewel Case & Full Color Booklet and Tray Card					
Booklet:	300	500	1,000	2,000	5,000
1-Panel	\$1,627	\$1,748	\$1,903	\$2,893	\$5,943
4-Panel	\$1,957	\$2,078	\$2,233	\$3,353	\$6,643
6-Panel	\$2,387	\$2,508	\$2,663	\$3,873	\$7,093

Includes graphics layout, typesetting, graphics proofs, film and printing for booklet, tray card and 2-color CD label (1-color for 999 or less), replication and packaging in shrink-wrapped jewel case. You supply a layout sketch, photos and Premastered CD-R - we do the rest.

RETAIL-READY CASSETTE PACKAGES with Full Color Graphics

Full-Color Standard J-Card, Norelco Box - Chrome Tape!					
Length:	500	1,000	2,000	3,000	5,000
to 12 Min.	\$720	\$1,004	\$1,588	\$2,090	\$2,974
13 - 29 Min.	\$750	\$1,071	\$1,714	\$2,267	\$3,247
30 - 49 Min.	\$791	\$1,148	\$1,865	\$2,478	\$3,575
Full-Color O-Card Single - Chrome Tape!					
to 12 Min.	\$715	\$935	\$1,394	\$1,918	\$2,600
to 29 Min.	\$740	\$979	\$1,476	\$2,033	\$2,778

Includes graphics layout, typesetting, graphics proofs, film, graphics printing, shell printing, test cassette, and shrink-wrapping - from your sketch, photos and master.

12" VINYL RECORDS incl. Mastering & Plating

12" Single, to 14 Minutes (33 or 45 RPM)					
	300	500	1,000	2,000	3,000
	\$795	\$1,015	\$1,285	\$2,195	\$3,065
12" LP, to 26 Minutes, 33 RPM					
	\$895	\$1,115	\$1,385	\$2,295	\$3,165

Includes DMM Mastering, plating, test pressings, label typesetting and printing, plastic sleeves, collation & shrink-wrapping. Jackets, black or white die-cut - \$.35 ea.

Call For Our Complete Catalog

EUROPADISK, LTD.

75 Varick Street, New York, NY 10013
☎ (212) 226-4401 FAX (212) 966-0456

(800) 455-8555

USE READER SERVICE CARD FOR MORE INFO

LIVE SOUND

convention centers, arenas, stadiums and transportation facilities.

WHAT LIES AHEAD?

Audio products are currently in a transition stage for both device and system design. The solution lies perhaps with new audio products specifically intended for network control rather than being adapted to it. The ideal device might include internal microprocessors or other digital control. Its design would support remote operation, and it may or may not include a "computer" as we know it today.

Eliminating analog front-panel controls reduces manufacturing costs. There is also a trend toward traditional outboard devices being replaced by DSP cards and/or "virtual" software functions. IED's UDAPS (Universal Digital Audio Processing System) and Peavey's MediaMatrix™ (based on technology developed by Peak Audio) are steps in this direction. *For more on MediaMatrix applications, see the Kenny G tour sidebar—Ed.*

A heavy research and development commitment is required to evolve such new-generation products. And the process of technology transfer—which includes educating the market and making all equipment, support and documentation readily available—is no trivial task.

Ultimately, sound system operation will become enhanced, and traditional ideas of audio products will be dramatically modified, via digital control capabilities. Incorporating signal processing functions (like delays and filters) in amplifiers and other products may become very cost-effective. Today's typical digital delay, crossover and other signal processing units are already being radically changed. All functions currently available in analog audio gear will eventually be digitally controllable. But the ultimate benefits and capabilities of such products will be limited if system-level designs are confined to traditional, existing product "architectures." ■

A member of the AES Board of Governors, David Scheirman, owner of Concert Sound Consultants, has worked with numerous computer-controlled sound systems. Formerly with Medialink Technologies, he is now IED's western regional manager. A 1991 TEC Award nominee (Sound Reinforcement Engineer), he co-chaired the first international Computer-Controlled Sound Systems conference in 1994.

—FROM PAGE 211, ELVIS COSTELLO

Gamble EX56 console, "and as far as insert equipment goes," he says, "I'm using a lot of tube stuff—Drawmer 1960 compression on the vocal, Summit DCL200s for guitars and bass, and some little cheap compressors made by a company called Conneaut Audio Devices, which I find work really well.

"With this band," he continues, "you need compression on just about everything. The keyboard levels come out of nowhere, and never from the same keyboard twice." Zammit says the drums are the only compression-free instruments onstage; on them he inserts Aphex 622 gates on kick, toms and snare. "I've got an SM91 and a [Beyer-dynamic] M88 on the kick drum, and the 91 is gated," he explains, "so that extra low end only comes into play when he hits the drum really hard. That's for an effect more than anything." As for the rest of Pete Thomas' kit, Zammit places an SM57 on top of the snare and a Beta 57 on the bottom, an SM81 on hi-hat, Sennheiser MD421s on toms, AKG C-414s overhead, and on Thomas' fashionable cocktail kit, there's an M88 on the bass drum, another C-414 overhead and another SM57 on snare.

Guitar amps are miked with an SM57 on each; the rest of the electronic instruments are DI'd through Countryman FET 85 boxes. The grand piano that Naive plays during the duo portions of the set is captured with a little rig of Zammit's creation. "It's a mixture of AKG products; the gooseneck/shock-mount arm and some of the hardware intended for use with C747 mini shotgun mics have been adapted to become a clip-on shock-mount rig for two CK1x capsules, which in turn connect to C460 preamps via a proprietary cable." (The "x" indicates that it is the remote cable version.)

"They clip onto the frame inside the piano and, to my mind, produce—as far as gain before feedback in a loud situation—about as natural a sound as you're going to get, far superior to the results achievable with any pickup known to me. If anyone has knowledge of a decent pickup, I'd be very interested in auditioning it." He uses a Beta 58a on Costello's vocal, and a Peavey AMR2020 effects unit serves as a "basic vocal delay." A Lexicon PCM 70 is used for general reverb. An AKG ADR-68K effects system is used exclusively for the Drums, and a TC 2290 is used for guitar-based effects.

Zammit says that on this tour, Costello has given him some loose directions

Our new 1x4 Active Concert System delivers the superior performance of active electronics with the benefits of transformers!



U.S. Audio mixers, amplifiers and specialty electronics are found at the best venues, broadcast facilities, studios, theme parks, and international sporting events. They combine innovative features and great sound with the rock-solid reliability Whirlwind products are famous for.



Check out our new Cable Armor!

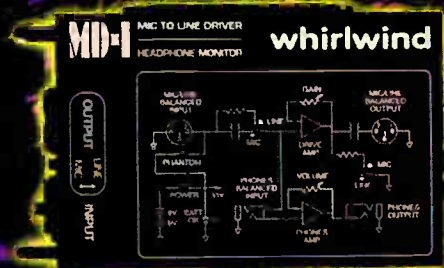


Call for more information Toll-Free!

Your Sound
whirlwind
Is Worth It.

CABLES • TUBES • PATCH BAYS • MIXERS • AMPLIFIERS • ADAPTERS • CONNECTORS
WHIRLWIND • 99 LING RD • ROCHESTER • NY • 14612 • 888-733-4396

The new MD-1 battery powered Mic Pre/Headphone Amp features 18V phantom power, Gain and Headphone Level controls, mic/line input and output level selection, and excellent audio performance.



PM tubes are Precision Manufactured versions of classic tube designs, plus new designs for new sounds. All duets and quads are computer matched for great, consistent sound and high reliability. **PM** tubes are "The Tubes for Music™".



that allow him to get a bit strange at times. "The reverb has changed since previous tours. I'm using less reverb than before, but there's a lot of stuff going on with delays in certain numbers, and I've got an H3000 inserted on the stereo bus, and in a couple of songs, I'll hit the switch and flange the entire mix. Elvis will just say, 'Go a bit psychedelic,' and so I'll just come up with stuff, and he seems to like what's going on. It's a fresh approach for them, and so if the band's gone full-circle and bonkers, well, what the hell, why not me?"

Electrotec's Lab-Q speakers are used for the house, powered by Crown and Crest amplifiers. The band's monitors are Electrotec's Lab-Q wedges, which Barnes says "are probably the best thing going on right now," powered by Crown VZ3612 amps. Barnes, whose other credits include Stevie Nicks and Guns N' Roses, mixes on a Midas XL3 console, and Electrotec has provided him with an impressive assortment of gear that he says he's not allowed to use. "I have a rackful of Klark-Teknik EQs. I have all kinds of Aphex gates and compressors, and the band doesn't want to hear them. It's almost deliberately low-tech. I do have a Summit compressor on his vocal, though, that he doesn't know is there," he laughs. "Don't print that till after the tour. He'd kill the rest of the band when he gets on the mic if I didn't have some kind of compression on him."

When *Mix* saw Elvis Costello & The Attractions at Berkeley, Calif.'s striking Greek Theatre, the band and crew were finishing up their U.S. dates and about to end the tour with six nights in Japan. Rumors surrounding the band's L.A. appearances suggest that this may have been Costello's last outing with The Attractions, at least for a good long time. But Zammit and Barnes don't seem particularly worried about losing this gig. Costello's pure love of music has led him to record with so many musicians and in so many styles over the years. "I've done dozens of dates with him at various music festivals and with dozens of different artists," Zammit says. "I think if I were going to work for any one artist, there's not anybody else I could work with and do such a broad spectrum of music. That keeps it very interesting." ■

Barbara Schultz is a Mix associate editor.

—FROM PAGE 212, SEX PISTOLS

Perman, Netti and Carter all agree that this is one of the most enjoyable and relaxed tours they've been on. The band and crew are all part of a comfortable team—evidenced by the fact the Sex Pistols do no soundcheck. "They trust us," Perman says. "And this show has gotten great reviews: Everybody wants to see the Sex Pistols. So the band have lots of friends coming backstage, and they want to relax and enjoy themselves. They don't want to bother with a soundcheck."

"The show is very straightforward," he continues, "but it works. Sometimes straightforward works better than so much technology. It's the only way to do this show. It's back to basics, back to rock 'n' roll, but they are so good; they're a very powerful little band."

Indeed. And that's one of the main things punk was about to begin with—back-to-basics rock 'n' roll—when the New York Dolls and The Ramones got the ball rolling all those years ago. The Sex Pistols certainly do not disappoint on that score. After sets by openers Gravity Kills and ska punk band Goldfinger, the Pistols performed for a



little more than an hour, slamming through pretty much the identical set that you can find on the excellent *Filthy Lucre Tour* live CD—from the wild and powerful "Bodies" to the famous "God Save the Queen" and "Anarchy in the UK" and ending up with "Problems."

Johnny Rotten, of course, mixed in a few choice remarks directed at tiresome audience members, and acted nasty and looked insane. That was the predictable part. But no one can predict how amazing it feels to hear Steve Jones' opening guitar riff and hear the whole band launch into "Pretty Vacant" live—except for those lucky enough to have been in the right place at the right time in 1976, or in 1996. ■

—FROM PAGE 214, MEDIA/MATRIX

tem input, delay, EQ, sub control, frequency control and limiters—all accessible via a mouse click. The "EQ" control block, for example, recalls a custom control panel (laid on top of the master control screen) resembling a parametric equalizer. The parametric EQ can then be adjusted via "point and click," and then re-stored.

Multiple controls or functions can be grouped for global control. "For example, you can link the output controls of the crossovers—grab any one of the eight mid bands and they all respond and preserve their offset attenuation. Click again to control individual offsets."

For the Kenny G tour, the MediaMatrix system was housed in a specially made shockproof traveling rack fabricated by Maryland Sound. The system's dual hot-swappable power supplies, accessible from the front of the mainframe, eliminate concerns about power supply failure. The rack was also equipped with an uninterruptible power supply, which Tucker found to be handy.

In mixing Kenny G, Tucker's goal is that no one should notice the sound system. If they don't, he figures he's done his job right. "The concert should

be an experience free from 'technical' distractions of any kind. The trick is to be delicate when the show is delicate, forceful when it's needed, but never overhearing or wimpy," he explains. "It's a fine line, particularly with the distances involved in your typical concert situation."

The Inverse Square law, which states that sound is attenuated by 6 dB each time the distance to cover is doubled—tends to rear its ugly head in the touring arena. The challenge is making the system sound full and rich to someone sitting 300 feet away, without annoying the people 30 feet away.

Helping the mixer meet this challenge is one of the strengths that Tucker sees in MediaMatrix. "Take EQ, for instance, in a long-throw vs. near-field scenario. Even with amp attenuation you might not be able to EQ properly for the near-field. The 16k boost you put in the system for the back row can make the midrange too quiet for the near-field listener because you have attenuated for the loudest part of that band. With MediaMatrix, you have the discrete control at your mouse fingertips." ■

Rod James is an East Coast-based freelance writer.

Lower your standards.

Acoustic™ has set a new standard of low with the absolute lowest, loudest sub-woofer in the world.



I guarantee dat dis is da loudest and lowest sub-woofer in da world or 'yer money back. Call us today fer' details on an in-store demo.

Whya dudes, I'm stoked! But it'll never fit in the back o my Pinto!

Now 'dats an offa ya' can't refuse!



This is the same technology that shattered glass, (and a few nerves), at Winter NAMM, instantly making all other sub-woofers obsolete. Check the specs, and our 10 Year Bullet Proof Buyer Protection Plan, then call us for complete product brochures.

- 26" Speaker cone
- Sound recognition under 40hZ
- Patented sub-woofer technology
- <1-500hZ rms 900 watts continuous
- Heavy-duty metal stackable corners
- Neutrik Speakon NL4MP connectors
- Durable carpet covering over all hardwood ply cabinet

acoustic

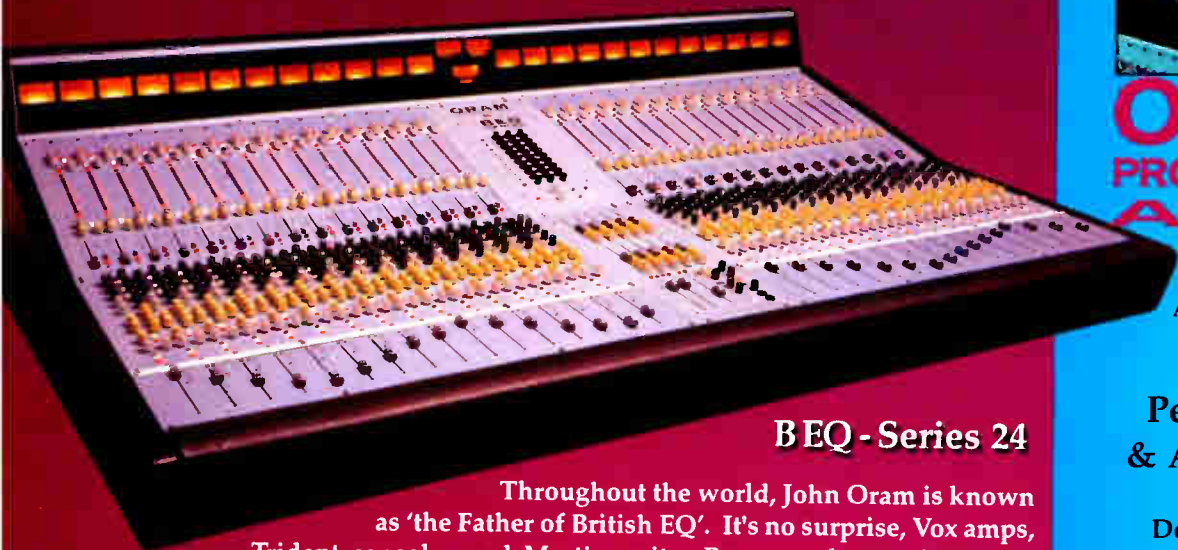
The sound of the 21st century

You're Protected For
10 YEARS
Bullet-Proof Buyer Protection Plan

SAMICK 

18521 Railroad St., City of Industry, CA 91748 • 818-964-4700 • Fax 818-965-5224 • E-mail samick_music@earthlink.net

THE GEAR IS SERIOUS THE PRICE ISN'T ARE YOU ?



BEQ - Series 24

Throughout the world, John Oram is known as 'the Father of British EQ'. It's no surprise, Vox amps, Trident consoles and Martin guitar Pre-amps have taken John Oram's EQ and circuit design philosophy to every corner of the globe.

Check out these products at your Studio Supplier and experience the warm, Vintage sound of **Oram Sonics**® enhanced by ultra low-noise characteristics and reliability of SMT (Surface Mount Technology).

You too can enjoy that classic 'Brit' sound and take advantage of a board full of serious Mic-pre's and EQ's that are as good as any external rack gear you care to name.

HD EQ -2 High Definition Equaliser



The ultimate Stereo EQ.
A total of 8 bands per channel
utilising sweep and shelf circuitry.
Separate Filter and EQ Bypass. Switchable
±18/6 dB for High Definition detail.

MWS Microphone Work Station



Two Channel Mic Pre -amp
with 4 bands of sweep and fixed EQ
+ High and Low filters

VU-More Intelligent Audio Measurement



Unique Stereo measurement
of line and noise levels. Built-in patchable
Oscillator and Phase correlation indicator.

USE READER SERVICE CARD FOR MORE INFO



BEQ - Series 8 Console

starting at under \$10,000

Blue Ribbon Award Winner 1995
TEC Award Nominee 1996



World Radio History



ORAM PROFESSIONAL AUDIO

BEQ - Series 24
Available through

Chris Pelonis
**Pelonis Sound
& Acoustics, Inc.**

PO Box 1246
Downey, CA 90240
Tel: 805 563 0505
Fax: 805 563 9604

Peter Lanzilotta
**Double Take
Studio Services**

246, 5th Avenue
Suite 206, New York
NY 10001
Tel: 212 685 7900
Fax: 212 725 3806

Distribution USA, Canada
& Mexico

TGI (North America) Inc.

300 Gage Avenue
Kitchener, Ontario
N2M 2C8, Canada

Tel: 519 745 1158
Fax: 519 745 2364

MIX
1996 AES
New Products
GUIDE



THE MIX 1996 AES NEW PRODUCTS GUIDE

Welcome to *Mix's* Annual New Products Guide. In this guide, we focus on products that were introduced (or were shipping for the first time) in the months prior to—and including—new introductions at the 101st Audio Engineering Society convention in Los Angeles. For those who plan to attend, here's some of the tasty new technology that will be on view at the L.A. Convention Center November 8-11, 1996. If you can't make it to AES in person, don't despair: We'll provide complete coverage of all the show highlights in future issues. —George Petersen

All of the product information presented here was supplied by manufacturers. Specs, prices and availability may change, so contact the companies directly for more information.

CONTENTS

- 226 AC Power Products
- 227 Acoustical Materials
- 227 Automation, Synchronization and Control Systems
- 228 Cables and Connectors
- 230 Computer Hardware and Software
- 238 Loudspeaker and Monitoring Systems
- 252 Microphone Preamplifiers
- 258 Microphone Products
- 264 Mixing Consoles
- 270 Music Products
- 274 Power Amplifiers
- 276 Recording/Editing Devices and Media
- 280 Signal Processing Products
- 286 Test Gear
- 287 Other Products

AES NEW PRODUCTS COVER: LA PHOTO, EDDIE HIRONAKA/IMAGE BANK; DESIGN, TIM GLEASON



Aural Missing-Link Cubed Buss 6

Missing-Link Cubed Buss 6 is the ultimate AC connection for professional audio or video components. ML Buss 6 uses 6 AC industry-grade inputs for precise AC coupling. ML Buss 6 manages and protects components while improving signal transfer and sonic reliability. Purely passive design with no current limiting. ML Buss 6 is terminated with ML Cubed Power Transmission Line. Retail from \$1,100. ML Cubed Power Line is available separately. 21636 N. 4th Ave., Ste. A-4 Phoenix, AZ 85027 Phone 602/516-2248; Fax 602/516-2251



Equi-Tech Rack Systems

Equi-Tech's rackmount balanced power systems are listed by ETL and tested to ANSI/UL standard No. 1012. This listing clears the last of the legal obstacles relating to the use of balanced power. Five different sizes of rack systems ranging between 15 and 50 amps (\$1,389 to \$2,889) have received this approval. Typically, balanced power (when applied to an A/V system) reduces noise by 16-20 dB. Money-back guarantee if the systems fail to provide a significantly lower noise floor.

Equi-Tech Wall Cabinet Systems

A new line of turnkey, balanced AC power systems designed for AC hardwiring in production facilities requiring 5 KVA (50 amps) or more technical power. The systems

feature ease of installation by an electrical installer, requiring only a single 208-volt or 240-volt feeder and an isolated ground wire. The outputs are then connected to AC branch circuit wires feeding outlets in the studio or production facility. A typical system can lower the noise floor by as much as 20 dB, in many cases eliminating hum and buzz completely.

Box 249
Selma, OR 97538
Phone 541/597-4448; Fax 541/597-4099
E-mail mg@equitech.com
Web site <http://www.equitech.com>

ETA Systems PD16VRS

ETA's 30-amp microprocessor-controlled AC line voltage regulator with 4-stage sequential power up/down. This double-rackspace model is managed by a microcomputer which controls incoming AC power, outgoing load (amps) and all operational functions. Unit provides clean, stabilized, protected and conditioned power.

1532 Enterprise Pkwy.
Twinsburg, OH 44087
Phone 216/425-3388; Fax 216/425-9700
E-mail eta@etasys.com
Web site <http://www.etasys.com>



Furman Sound IT-1220

The IT-1220 20-Amp Balanced Power Isolation Transformer takes advantage of the recent National Electrical Code recognition of 120/60V, single-phase balanced AC power for critical, ultralow-noise applications. The IT-1220 all but eliminates ground currents by the common-mode cancellation effect, reducing the need to adopt cumbersome and expensive star-ground systems, massive bus bars or heavy ground rods. The IT-1220 provides a total of 14 balanced outlets, as well as a "smart" AC voltmeter, Extreme Voltage Shutdown and a "Soft Start" circuit. List: \$1,479.

30 Rich St.
Greenbrae, CA 94904
Phone 415/927-1225; Fax 415/927-4548

Juice Goose Rackpower 100-20A

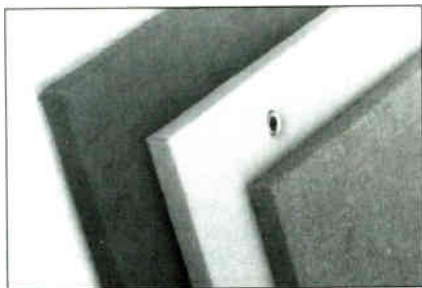
Provides a full 20-amp capacity and high levels of protection and line condition. The multistage filter reduces EMI and RFI on the main power line. Eight NEMA 5/20 outlets on the back provide lots of connectivity. The Rackpower 100-20A features a tour-class, all-steel chassis and a 3-year warranty.

7320 Ashcroft, Ste. 104
Houston, TX 77081
Phone 713/772-1404; Fax 713/772-7360



Acoustical Solutions AlphaSorb Panels

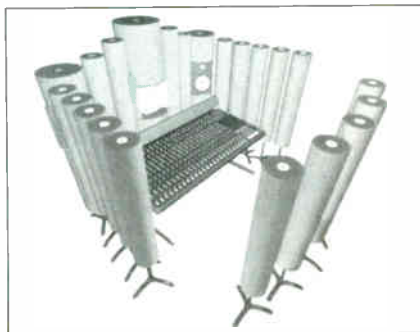
AlphaSorb panels are rigid wall panels or hanging baffles covered in an attractive Guilford fabric. They offer high acoustical performance as well as an attractive appearance appropriate for any setting. AlphaSorbs are available in any size up to a 4'x10' panel in either a 1" or 2" thickness (1"=NRC .80). AlphaSorbs are Class 1 fire-rated.



Acoustical Solutions Audioseal

A sound transmission blocker that will stop an average of 27 dB of sound from traveling through walls, floors or ceilings. It is a limp-mass vinyl that is very dense (weighs one pound per square foot). Audioseal Sound Barrier is sold by the full roll (54" x 60' x 1/8") or the individual square foot (\$472/roll, \$2.25/square foot). Apply by nailing or gluing to existing surface, then sheetrock over it or cover with an absorber like AlphaPyramid foam or AlphaSorb Wall Panels.

2720 Enterprise Pkwy, Ste. 101
Richmond, VA 23294
Phone 800/782-5742; Fax 804/346-8808



ASC Tube Trap ATTACK Wall

ATTACK Wall provides acoustic control at the mix like never before. This innovative mix environment creates crystal-clear imaging and an accurate, tight, low bass. The

configuration places Studio Traps and monitor stands in front of, flanking and behind the engineer for a virtually reflection-free zone. Part of the MASS system, the ATTACK Wall brings world-class acoustics at a fraction of the cost of conventional studio design and construction. Priced from \$5,000 to \$10,000.

PO Box 1189
Eugene, OR 97440
Phone 541/343-9727; Fax 541/343-9245
E-mail studio@tubetrap.com
Web site http://tubetrap.com

Auralex LENRD

The LENRD™ (Low End Node Reduction Device) is a triangular-shaped piece of our special stock, cut with varying anechoic wedges that really eat sound in general and bass frequencies in particular. The overall NRC for LENRD is 1.35, with an NRC of 1.24 at 125 Hz. When mounted in a corner, a LENRD measures out from the corner along each of the two walls 12". Just one box of LENRDs is enough to effectively trap two 8-foot-tall corners floor-to-ceiling. Available in 9 colors.

Auralex 3-Inch Studio Foam

Cut in our proprietary anechoic-wedge surface contour, 3" Studiofoam is intended primarily for those spaces that need greater absorption overall and particularly at 125 Hz than would be yielded by 1" or 2" Studiofoam. A great choice for drum and iso booths on a budget that doesn't allow for 4" Studiofoam. Overall NRC is .90. More than twice as absorbent at 125 Hz as our own 2" Studiofoam. Eight 2'x4' panels per box cover 64 square feet. Available in 9 colors.

11571 E. 126th St.
Fishers, IN 46038
Phone 317/842-2600 or 800/95-WEDGE
Fax 317/842-2760
E-mail auralex@auralex.com
Web site http://www.auralex.com



RPG Diffusor Systems AcousticTools

AcousticTools™ is the first affordable system of reflection-control, diffusion and bass-control products to quickly and easily optimally tune a project studio. Individual tools include the Abflector, providing enhanced imaging by offering broad-bandwidth absorption of first-order reflections; the Skyline diffusor, offering enhanced spaciousness and a wide sweetspot by diffusing rear-wall reflections; and the Bass Trap, which improves low-frequency modal response by absorbing low frequencies below 100 Hz.

651-C Commerce Drive
Upper Marlboro, MD 20774
Phone 301/249-0044; Fax 301/249-3912
E-mail info@rpginc.com

Systems Development Group Sonora Line

Sonora Wall Panels are available in 1/4- to 2-inch-thick, custom sizes from 2'x2' to 4'x10' in four hardened-edge design options. SDG's Vertical Baffle and High Mass Ceiling Panels are ideally suited where additional sound absorption at the ceiling can upgrade overall acoustics. All Class-A fire-

rated SDG Sonora panels and baffles are fabric covered in an attractive selection of colors and patterns.
5744 Industry Ln., Ste. J
Frederick, MD 21704
Phone 301/846-7990; Fax 301/698-4683
E-mail 2114988@MCIMAIL.COM



Aardvark AardSync II

Synchronize all your video & digital audio equipment with this single, low-jitter master generator. The stable video lock and multiple digital audio outputs solve almost any video and audio synchronization problem. Low jitter enhances 20-bit audio. Handles all pull-ups & pull-downs. Sync any workstation, digital mixer, A/D, D/A, DAT, Digidesign and Sonic Solutions compatible. 96kHz upgrade. Input: Video Blackburst (NTSC or PAL); output: 2 AES/EBU sync, 3 Word Clock, 1 256WC. MSRP: \$1575.

202 E. Washington, Ste. 306
Ann Arbor, MI 48104
Phone 313/665-8899; Fax 313/665-0694
E-mail lovell@aardvark-pro.com
Web site http://www.aardvark-pro.com

Brainstorm SA-1

The SA-1 is the same analyzer as found in Brainstorm's SR-15+ Distripalyzer, repackaged in a small portable unit. It operates on an external 6VDC supply and can be used with a battery pack. The SA-1 easily identifies timecode format & frame rate, monitors video phase and reports timecode errors. Printed reports can be generated via rear panel parallel and serial ports.

Brainstorm SR-3

The SR-3 is a timecode regenerator designed to repair dropouts, reduce jitter and correct video phase. Housed in a small portable enclosure, its front panel features a large timecode reader and LEDs to identify format and video phase. The SR-3 can also be used as a timecode generator to create new code.

Distributed by Audio Interstitial Design
1155 N. LaBrea Ave.
West Hollywood, CA 90038
Phone 213/845-1155; Fax 213/845-1170

ESE LX-5112

This 12" analog clock is designed to operate as a timecode reader, a stand-alone clock or an impulse clock. The LX-5112 is capable of automatically setting itself to the correct time as received via any one of three different timecode inputs (SMPTE/EBU, ACSII or ESE). Alternate modes of operation on the LX-5112 allow the clock to synchronize with an alternating 12- or 24-volt impulse signal or to act as a stand-alone clock. Sweep or Step silent modes and Time Zone Offset are user-set via rear mounted DIP switches. Options for a lighted dial (with brightness control) and rack mounting are also available. List: \$575.

ESE LX-219A and LX-220

The LX-219A and LX-220 feature enhanced RS-170A blackburst circuitry and extremely precise stability. Perfect for preblacking tapes and/or for general synchronization purposes, the LX-219A (six outputs) and LX-220 (ten outputs) are both available from stock now. Options include 1kHz tone output, composite sync output, rack mount and UL-approved power supply.

142 Sierra St.
El Segundo, CA 90245
Phone 310/322-2136; Fax 310/322-8127

Euphonix MixView 3.0 Automation

Support is now provided for moving faders in one or both fader positions in the CS2000. Systems can be created with combinations of moving and nonmoving fader modules. Any fader on the CS2000 can be programmed to send continuous controller MIDI data. Effects devices and other MIDI equipment can be controlled in real time or dynamically automated by the CS2000. The CS2000 automation now includes editing functions, making it easier to use and faster to complete the final mix. New features include Offline Trim, Group Coalesce, Pass Join, Import Mix, and many more.

11112 Ventura Blvd., #301
Studio City, CA 91604
Phone 818/766-1666; Fax 818/766-3401
Web site <http://www.euphonix.com>



JLCooper Electronics MCS2

MCS2 is a new version of JLCooper's cost-effective Media Control Station remote controller for computer-based music sequencers, audio and video editing systems, hard disk and tape-based audio recorders and videotape machines. Available in four versions: Macintosh (ADB), MIDI/MMC, RS-232 and a new 9-PIN RS-422 version for direct control of most popular video tape recorders, MCS2 has the ability to control most recording and playback devices.

JLCooper Electronics MMC/9PIN

MMC/9PIN is an innovative device capable of controlling 9-pin compatible videotape recorders from a MIDI Machine Control-compatible computer-based sequencers and digital editing systems. It converts MMC transport commands, locates and tracks arming messages into corresponding 9-pin messages. MMC/9PIN generates SMPTE and MTC in response to MMC Locate and Play commands. MMC/9PIN also converts 9-pin sync into SMPTE and MTC to lock any compatible device to video.

12500 Beatrice St.
Los Angeles, CA 90066
Phone 310/306-4131; Fax 310/822-2252

Level Control Systems LD-16S

The LD-16S is a 16-channel hard disk record/playback expansion board that provides instant-start, multichannel digital audio playback for LCS's recently introduced LD-88 digital mixer. All samples are 32-bit floating-point to maintain resolution and dynamic range during recording and playback. A SIMM slot supports up to 32 MB of RAM to preload the starts of audio tracks, providing instantaneous synchronous or asynchronous track playback.

10061 Riverside Dr., #742
Toluca Lake, CA 91602

Phone 818/506-0051; Fax 818/506-3070
E-mail info@LSCaudio.com
Web site <http://www.LSCaudio.com>



Mark of the Unicorn MIDI Timepiece AV

This 8-port MIDI interface and SMPTE/video/audio synchronizer for Mac and PC (via LPT) has all MIDI/SMPTE features of MTP II, plus video sync input (genlocks to video), ADAT sync output (drives ADATs without BRC), word clock/super-clock output (drives any word clock device or Digidesign system). Drives everything from MMC sequencer or LRC. Stripes frame-locked LTC onto video. Syncs ADAT with Digidesign. Slaves everything to video with 0.1% pull-up/down.

1280 Massachusetts Ave.
Cambridge, MA 02138
Phone 617/576-2760; Fax 617/576-3609
Web site <http://www.motu.com>

Optifile Drax Automation

Drax from Optifile is a full-featured fader and mute automation package designed specifically for Mackie and Soundcraft Ghost 8-bus consoles. Drax, which runs in Windows 95, is installed inside the console, using existing faders and mutes. The system supports all timecode formats, delivers true 256-step fader resolution and doesn't tie up inserts or require external fader packs or controllers. Features include AutoDrop, dual RAM buffers and a virtual timecode generator.

Distributed by Sascom Marketing
34 Nelson St.
Oakville, Ontario, Canada L6L 3H6
Phone 905/469-8080; Fax 905/469-1129
E-mail sales@sascom.com
Web site <http://www.sascom.com>

Otari Eagle Automation

Otari's new Eagle Automation provides fast, interactive operation of Otari consoles and is designed to operate with greater resolution than previously available on the renowned DiskMix system. Operating under Microsoft Windows 95, Eagle will provide dynamic automation of faders, mutes and computer-controlled switches and will allow users of MIDI systems to communicate with the console. A beautiful new graphic interface provides users with a fast, elegant way to view and edit automation data.

378 Vintage Park Dr.
Foster City, CA 94404
Phone 415/341-5900; Fax 415/341-7200
Web site <http://www.otari.com>



Rapco Cable Peaking Tom

The Peaking Tom is a multiplex device used to remotely detect any light-emitting source, such as clip lights or zero VU indicators. Its simplicity makes it unique: when one of sensors 1-8 senses light, it triggers the appropriate LED at the FOH position. The Peaking Tom signals any potential problem before it occurs. Finally! Sound engineers can be in complete control, as they should be.

3581 Larch Ln.
Jackson, MO 63755
Phone 573/243-1223; Fax 573/243-1384
Web site <http://www.rapco.com>



Soundmaster Group ATOM

ATOM™ forms the hardware core of Soundmaster's ION Operating Environment by consolidating the power of multiple Soundmaster SYNCRO™ controllers into a 4U rack-mount unit that does not require a separate computer. Features include SMART SYNC®, a patented varispeed lock feature, SMPTE to EBU synchronization, reverse lock, ramped biphasic motion control and integral word clock, video sync and timecode generators. ATOM comprehensively integrates hundreds of studio technologies including Avid AudioVision, Dolby Drive, Tascam DA-88 and Otari RADAR. Systems start at U.S. \$9,995.

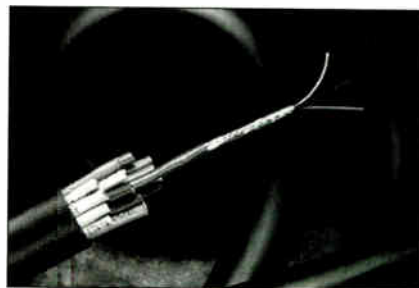
89 Barford Rd.
Toronto, Ontario, Canada M9W 4H8
Phone 416/741-7057; Fax 416/741-4608
E-mail 102100.151@compuserve.com
Web site <http://ourworld.compuserve.com/homepages/soundmaster>



Aural Optimism

Optimism™ is the ultimate glass-fiber transmission line for optical interfacing of professional digital audio components. Optimism is a precision optical path for use within systems requiring absolute signal transfer with minimal loss due to optical refraction. Optimism is hand assembled and hand polished. Optimism uses precision metal ST terminations. Available in 2-meter length only. Retail: \$595.00.

21636 N. 14th Ave., Ste. A-4
Phoenix, AZ 85027
Phone 602/516-2248; Fax 602/516-2251



Belden AudioFLEX Snake Cables

AudioFLEX™ Snake Cables are a new line of superflexible, nonkink™ multiple-pair audio cables. They exhibit an extremely low level of microphonic or tri/bi-electric noise and are used to connect multiple audio channels in low-level (microphone) and high-level (line) componentry such as console board equipment for recording studios, radio and TV stations.

Bcx 1980
Richmond, IN 47375-1980
Phone 317/983-5200; Fax 317/983-5294
E-mail info@belden.email.com

Match & Win Quiz

See if you can match the Digital Multi-track machine on the left with its ideal recording companion on the right.

#2 Soft Lead Pencil only. Be neat, work slowly, keep lines straight. No erasing!

ALESIS ADAT



8



ATI 8MX2 Preamp/Mixer



8 of ATI's hallmark High Voltage Mic Preamps, **each** with a **Variable Threshold Limiter**, 48v Phantom power switch and Ground Lift switch

TASCAM CA-88



M



ATI 8MX2 Preamp/Mixer



Simultaneous 8x2 mixer for monitoring the recording or for playback mixing to the stereo buss. Mix assign/Mute switch. 9 pin Master/Slave ports for multiple unit connection of the Cue and Mix busses

SONY PCM-800



X



ATI 8MX2 Preamp/Mixer



Comprehensive cue system, Input and Gain Reduction meters, Headphone and Monitor Out. Rear panel 2 Track Returns, DB25 Multipin Mic pre Outputs, and DB25 Multipin Tape Returns

ROLAND DM-800



2



ATI 8MX2 Preamp/Mixer



Frequency response: +0/-1 dB, 10Hz-50KHz, 20dB of headroom throughout, THD: 0.008% at +4dBm, Residual Noise: -86dBm, total voltage gain 65dB, **ONE RACK SPACE**

ANSWER: ATI's new 8MX2 Preamp/Mixer is the ideal companion to ANY of the many digital multitrack machines in use today! Loaded with features, the 8MX2 allows the highest quality recordings to be made, either in the studio or on the road. **Hitch an 8MX2 to the front end of each of your Digital Multitrack machines and start doing some serious recording!**

USE READER SERVICE CARD FOR MORE INFO

SEE US AT AES BOOTH # 463



Here's how you win. Just buy an 8MX2 Preamp/Mixer and receive a case of blank recording tapes (either S-VHS or Hi-8) absolutely free from ATI! Free tape coupon included with every 8MX2. Coupons redeemed by December 31, 1996. One coupon per 8MX2 purchased. Get to your pro music dealer today and ask for the 8MX2, or call ATI at **1-800-642-8063**.

(If you own a hard disk recorder, you're already too cool. We'll send you the tapes for your VCR!)

ATI • Audio Toys, Inc. • 9017-C Mendenhall Court • Columbia, MD 21045 • Phone: 410-381-7879 • Fax: 410-381-5025

Products and trademarks shown are the property of their respective owners. Specifications, features and performance of this system may be changed or improved without prior notice. © 1996 Audio Toys, Inc.

• AES NEW PRODUCTS GUIDE 1996

Canare BCG-XJ A10TR

XLR-to-BNC impedance transformers for converting short-run, 110-ohm, twisted-pair digital audio signals to long-run, 75-ohm BNC or RCA coaxial cable. AES/EBU or S/PDIF platforms. Usable with Canare Video Patchbays. 1-volt peak-to-peak version can route signals through standard video D/As.

531 5th St., Unit A
San Fernando, CA 91340
Phone 818/365-2446; Fax 818/365-0479
E-mail canare@canare.com
Web site <http://www.canare.com>

Connectronics Ultraflex Cables

Includes UFX P01 AES/EBU cable—ultra flexible; UFX P04 4-pair shielded Multi Cable—ultra flexible, small O/D; UFX P08 8-pair shielded Multi Cable.

411 Pequot Ave.
Box 908
Southport, CT 06490
Phone 209/256-0545; Fax 203/256-0440

DCE Project Patch Studio Kits

Project Patch Studio Kits™ from David Carroll Electronics are complete plug-and-play studio-wiring systems based on Project Patch™ bantam (TT) or the new Project Patch TRS™ 1/2-inch patchbays. Designed for project studios of any size but at home in any application where audio is routed. Studio Kits come with all patchbays and prefabricated cable sets required to connect all of your equipment. The fully documented installation is as easy as plugging in cables, with no need to strip, solder, crimp or punch down a single wire.

DCE Project Patch TRS

Project Patch TRS™ is a new patch bay option being added to the Project Patch™ Studio Wiring System. Project Patch TRS uses PC board-mounted 1/2-inch TRS jacks, which are brought out to high-quality gold-pin header connections, and modular cables that allow quick, plug-in installation. A full line of prefabricated audio cables are added to mate with virtually all studio equipment. Reconfiguring the patchbay is as simple as moving cables, without the need to strip, solder, crimp or punch down a single wire.

3219 Pierce St.
Richmond, CA 94804
Phone 510/528-8054; Fax 510/526-1982
E-mail LeePom@ix.netcom.com

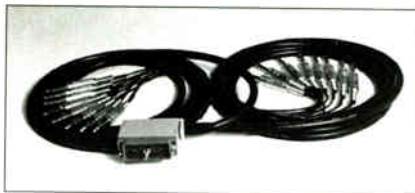
D.H. Labs Silver Sonic D-110

Silver Sonic D-110 is a precision 110-ohm, AES/EBU, balanced digital interconnect. It is the only AES/EBU cable to utilize a pure Teflon dielectric and high-purity silver-coated conductors for state-of-the-art performance. Other features include 100% shielding, very tight manufacturing tolerances, and an attractive appearance. Silver Sonic D-110 is recommended for digital audio applications where the highest sound quality is desired. Retail price: \$5/ft.

D.H. Labs Ultimate XLR

The Ultimate XLR sets a new performance standard for XLR connectors. It is the only XLR connector with contact pins made from pure Oxygen Free Copper. The contacts have a direct hard gold plating, which is very durable and more conductive than the nickel/gold normally used. The Ultimate XLR is intended for any application requiring the highest sound quality, including mastering and recording studios, high-end audio systems, etc. Retail: \$12.50.

Box 31598
Palm Beach Gardens, FL 33420-1598
Phone 561/625-8998; Fax 561/625-8998



HAVE Inc. ADAT Cables

HAVE manufactured top-of-the-line digital audio cables, with separate "in" and "out" lines for easy identification. Eight tracks of balanced audio, featuring two Canare 8-channel cables, ELCO 56-pin metal backshell connectors and choice of Neutrik 1/2-inch TRS, longframe, Bantam TT, RCAs, XLRs or tinned ends. Lengths: 10', 15', 20'. List from \$299.95 to \$349.95 (for XLRs). Available for Tascam, Fostex and Sony, as well. For information or new catalog call 1-800-999-HAVE (4283).

309 Power Ave.
Hudson, NY 12534-2448
Phone 518/828-2000; Fax 518/828-2008
E-mail have@haveinc.com
Web site <http://www.haveinc.com>

Link S.N.C. Eurocable Products

Link introduces Eurocable™, which includes a wide range of audio, video and control cables, single and multipair AES/EBU, wiring cables, Starquad, coaxial and multicore speaker cables, coaxial and triaxial cables; Cable Reels HD Series, all stackable with clutch, brake and frame; LK Connector Series, a standard for multiple audio signal connection whose main features are strength, extensibility and water-tightness. Available from 19 up to 150 pins, wiring is strictly standard for balanced signals.

Via Tiburtina 912
00156 Rome, Italy
Phone 39-6-4072831; Fax 39-6-4073138

Neutrik Circular DIN Connectors

Neutrik offers circular DIN connectors in three, five and seven pins, cable- or chassis-mount. The cable connectors have a large strain-relief clamp for secure grip and a nickel plated metal shell to help protect from abuse. Chassis-mount connectors have flared terminals to ease assembly. Connectors are extremely price competitive. Reference part #NYS321, NYS322, NYS323 (cable ends) and NYS324, NYS325, NYS326 (chassis mounts).



Neutrik PatchLink

PatchLink™ is an economical and versatile 1/2-inch modular patch panel. 48 (2x24) balanced channels in a 19" rack-mountable unit contain front and rear 1/2-inch jacks according to EIA standard RS-453. Each unit features ID strips, nontarnishing contacts, individually replaceable PC cards and the ability to change easily from normaled to half-normaled.

195 Lehigh Ave.
Lakewood, NJ 08701
Phone 908/901-9488; Fax 908/901-9608

Speck Studio Standard Cables

Speck Electronics has introduced a tightly focused line of audio interface cables for all MDM and hard disk recorders (ADAT, DA-88, RD-8, Pro Tools, Darwin and many others). A "no-compromise" design philosophy delivers a low noise, 100% shielded, and 100% tested audio interface cable at only a slightly higher price than the budget "bag-

O-cables." Studio Standard Cables are available at better audio dealers and direct from Speck's Web page. U.S. list: \$325 to \$387.

925 S. Main St.
Fallbrook, CA 92028
Phone 619/723-4281
Web site <http://www.speck.com>

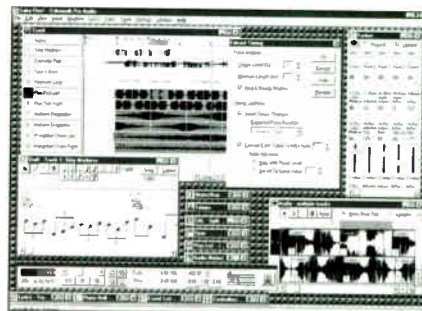


Transparent Reference XL Cables

Transparent Cable debuts Reference XL interconnects and speaker cables for world-class mastering/recording studios. Artists recording or mastering in studios that use Transparent Cable received nine Grammys this year. Bob Ludwig's Gateway Studios (cabled throughout with Transparent Cable) has won six TEC Awards. Based upon sound engineering principals, Transparent manufactures passive networks onto their cables that control resonance, RF noise and impedance matching.

PO Box 117 Rte. 202
Hollis, ME 04042
Phone 207/929-4553; Fax 207/929-4271

Computer Hardware and Software



Cakewalk Pro Audio 5.0

The complete music workstation for Windows PCs. Unlimited digital audio tracks; powerful audio editing; front-end support for Soundscape SSHDR1, Digidesign Session 8 and Audiomediam III; professional MIDI editing; high-quality notation; audio and MIDI synchronize to SMPTE/MTC; Cakewalk Application Language (CAL); enhanced instrument definitions; Cakewalk TECHniques, onscreen live motion tutorials; much more. Includes both Windows 95 and Windows 3.1 versions. CD-ROM and 3.5" disks, (\$399 MSRP)

Cakewalk Pro Audio 5.0 Deluxe

All the power of Cakewalk Pro Audio plus Musician's Toolbox™ CD-ROM. 600+ MB of fully licensed material. Tools, digital audio grooves and samples; MIDI drum files; additional advanced tutorials; much more. Includes Q-UP Arts Audio Library; Steve Luongo's House of Drums; DNA Groove Templates by WC Music; CanvasMan GS patch editor/librarian; Route 66 Audio Jams; The Hy-phen-a-tor;

—LISTING CONTINUED ON NEXT PAGE

Focus on the Details

Like precise visual images you get from a high quality professional camera and large lens, the CAD E-300 produces unparalleled aural imaging of the audio environment.

A unique combination of CAD's exclusive Equitek Servoed head amplifier and a classically designed large capsule provides...

- Precise Signal Reproduction
- Extraordinary Ballistic Integrity
- Extended Low -end Response
- Unmatched Transparency

The E-300 Servo-Condenser Microphone from CAD 'A Revolution In Resolution'

- 1.1" gold sputtered dual diaphragm externally biased capsule
- Multi-pattern-cardoid, omni, figure 8
- 20dB non-capacitive pad
- Internal stainless steel EMI / pop filter
- Ni-Cad supported power supply delivering unmatched ballistic stability & allowing remote operation without phantom power.
- Available in matched pairs



E-300 Shown with optional ZM-1 Shock Mount

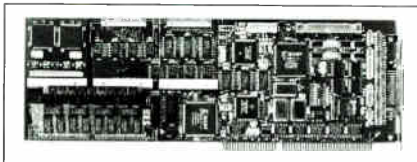
• CAD, a division of CTI Audio, Inc. • P.O. Box 120 • Conneaut, OH • 44030 • 800-762-9266 •

USE READER SERVICE CARD FOR MORE INFO

SEE US AT AES BOOTH # 1162

—LISTING CONTINUED FROM PREVIOUS PAGE

and Cakewalk TECHniques tutorials. Two CD-ROMS. (\$479 MSRP)
PO Box 760
Watertown, MA 02272
Phone 800/234-1171; Fax 617/924-6657
E-mail 102746.3467@compuserve.com
Web site <http://www.cakewalk.com>



Digital Audio Labs V8

DAL's V8 system is a highly modular hardware platform for the PC with an upgradeable DSP architecture and a variety of I/O options. In its base configuration, the V8 is capable of recording and playing up to 16 discrete tracks depending on system throughput. Application and plug-in software for the V8 is available entirely from numerous third-party developers.
13705 26th Ave. N., #102
Plymouth, MN 55441
Phone 612/559-9098; Fax 612/559-0124
E-mail dalinfo@digitalaudio.com
Web site <http://www.digitalaudio.com>

Digital Courier Capella (Version 3.0)

DCI's Capella version 3.0 is a professional-quality audio codec on a PC card. Capella enhances applications of MPEG Audio Layer II codecs by adding full PC-based software control. Capella transfers real-time audio between audio ports, hard disk, and a V.35 port. These capabilities enable systems integrators, studios, and radio stations to record and play MPEG files, broadcast audio through ISDN and satellite networks and build applications such as audio-on-demand. Priced from \$3,450 U.S.
8618 Commerce Ct.
Burnaby, B.C., Canada V5A 4N6
Phone 604/293-5188 or 800/909-7888; Fax 604/473-5835
E-mail dcii@mpr.ca
Web site <http://www.digital-courier.com>

Dolby Labs Dolby Surround Plug-Ins

Dolby Surround encoder and Pro Logic decoder TDM plug-ins in both NuBus and PCI versions enable Digidesign Pro Tools III, 4.0 and 4.1 workstation users to mix Dolby Surround videos, TV shows, ad spots, multimedia, music videos and video games entirely within the digital Pro Tools environment. Features include game-mode encoder and positioner options, surround panners, and monitoring in stereo and mono as well as Dolby Surround.
100 Potrero Ave.
San Francisco, CA 94103
Phone 415/558-0200; Fax 415/863-1373
E-mail info@dolby.com
Web site <http://www.dolby.com>

Emagic Logic Audio 2.6 for Windows

Logic Audio 2.6 for Windows 95 seamlessly integrates professional digital audio, MIDI sequencing and notation. Virtually unlimited MIDI tracks, sequences, folders and score staves; 960ppq resolution; 0.05 to 9999 bpm tempo range; and nondestructive, real-time quantization and editing. ScreenSets for multiple window management and user-definable key commands for most functions. Audio tools include an integrated Stereo Sample Editor, Digital factory and Time Machine II: regroove, quantize, time compress and expand audio tracks, plus more.

Emagic ZAP

ZAP (Zero Loss Audio Packer) for Macintosh is a new compacting utility which allows loss-free compression of digital audio data. Depending on the audio material, files can be compressed up to 50%. When expanded, the original audio data is restored with bit accuracy—no distortion, no frequency or phase deviations. There is currently no application available that successfully performs this task without coloring and changing the audio in some way.
13348 Grass Valley Ave.
Grass Valley, CA 95945
Phone 916/477-1051; Fax 916/477-1052
E-mail Emagic@emagicusa.com
Web site <http://www.emagicusa.com>

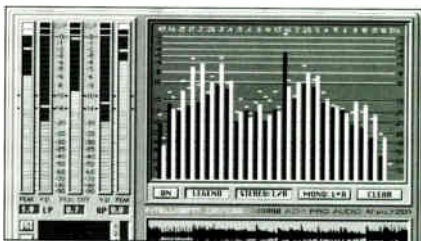
Gefen M & E Professional V2.3

M & E Professional is software to search sound effects libraries on compact disc. M & E Professional also lets you play CDs from large CD changers and transfer sounds from CDs to Sound Designer files on the hard disk. System is ideal for Avid and Digidesign users. \$1,495.



Gefen TSE 150/241

The TSE 150 sender and receiver units extend a Macintosh monitor and keyboard up to 500 feet away from the CPU (\$595). The TSG 241 CPU switcher switches between two or more Macintosh computers while working off a single monitor, keyboard and mouse. The PCX 100 sender and receiver units extend monitor, keyboard and mouse more than 100 feet from the location of the PC.
6261 Variel Ave., Ste. C
Woodland Hills, CA 91367
Phone 818/884-6294; Fax 818/884-3108
E-mail gsinfo@gefen.com
Web site <http://www.gefen.com>



Intelligent Devices AD-1 V2.0

The AD-1 Pro Audio Analyzer, the ultimate real-time monitoring tool, provides precise stereo peak and average metering, clip indicators, headroom margins, L/R sum and difference levels, spectral and phase analysis and a running waveform history display. Version 2.0 of this Mac-based software adds phosphor-emulation modes for the phase display and a choice of several views (all displays, meters & phase, meters & spectrum or meters/phase/spectrum/waveform only). AD-1 is available as a TDM plug-in or as a stand-alone application using Audiomedia or Sound Tools II hardware or with no hardware on a Power Mac using the 16-bit I/O or one of the new PCI-based I/O cards.
7 Hickory Ridge
Baltimore, MD 21228
Phone 410/744-3044; Fax 410/788-6370
E-mail inddev@clark.net

Trust Your Master To APOGEE DAT

DAT Cassettes

Available In:
15, 30, 60, 90,
and 120 min. Length

Recordable Compact Disc

Call America's #1 Choice For Audio & Video Products

California 800-422-2444
Washington 800-282-2468
Arizona 800-645-8027
Texas 800-348-9014
Georgia 800-457-6542
Florida 800-343-2797

Introducing Our New
Orange Co. Location
714-475-1933

VIDEOTAPE PRODUCTS INC
320 N. Madison Avenue
Los Angeles, CA 90004
800-422-2444

USE READER SERVICE CARD FOR MORE INFO

We Rely On The Best Ears In The Business.

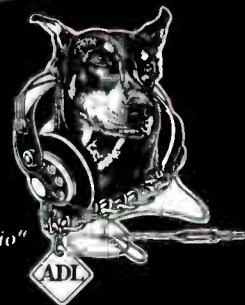
Warm It Up With ADL Pure Tube Equipment

Many manufacturers combine solid state circuits with tubes (known as hybrid circuitry). This may be less expensive, but certainly will not 'warm up' or 'fatten' your sound like an ALL-TUBE product. Anthony DeMaria Labs is the company that brings you the finest hand-built, pure-tube equipment in the world. Of course, you don't have to take our word for it. Check out our client list and hear the difference!

Remember... It's not ADL unless it's ALL TUBE.



(Shown Above)
ADL 200 DI Stereo Tube Direct Box
ADL 1000 Mono Tube Compressor
ADL 1500 Stereo Tube Compressor



"Top Dog In Audio"

Partial Client List:

The Rolling Stones • Aerosmith (Steven Tyler & Brad Whitford), Flood (U2, Depeche Mode), London • Bon Jovi • Sony Music, NY • Butch Vig (Nirvana)
Bearsville Studios, NY • Peter Dinklage (Paula Abdul, Des'ree, Mariah Carey) • DJ Pooh (Ice Cube), L.A. • Chung King House of Metal, N.Y. • Isley Bros. • Heart • Hall & Oates • Foreigner
Ted Nugent • Masterdisk, N.Y. • Paul Northfield (Rush, Queensryche, Alice Cooper), Canada • EMI Studios, Australia • Sunset Sound Factory, L.A. • Kevin Leonard (Whitney Houston)
The Cult • Neil Dorfman (Sting, Paul McCartney, Def Leppard) NY • Platinum Studios, Thailand • Bad Animals Studio, Seattle • Margarita Mix, L.A. • Sony Studios, Japan
John Jennings (Mary Chapin Carpenter), Nashville • Glen Phimister (Olivia Newton John), Australia • Bernie Becker (Neil Diamond) • Jimmy Buffet • Shawn Colvin
Walter Affanasief (Mariah Carey, Barbara Streisand, Michael Bolton & Kenny G • Guy Babylon (Elton John Band) • Greene St. Recording NY

Anthony DeMaria Labs

SEE US AT AES BOOTH # 1404

Sales: (818) 340-0228 • Fax: (818) 340-4331 • Service: (914) 256-0032

loudspeaker suspension hardware

Accomplished Rigging

ATM
FLY-WARE™

21000 S. Wilmington Avenue ■ Carson ■ CA 90810 ■ USA
Tel 310.834.5914 Fax 310.834.3042
SEE US AT AES BOOTH # 143

USE READER SERVICE CARD FOR MORE INFO



IQS Software Audio Workshop (SAW)

Innovative Quality Software's SAW plays up to four mono or stereo tracks simultaneously on as many as two Windows-compatible sound cards. Features include drag-and-drop nondestructive editing, SMPTE generate/trigger, real-time vari-pitch, reverse, sample rate and format conversion, volume, mute, solo, pan, compressor/gate, limiter/normalizer, paragraphic equalizer, echo/delay effects, and much more. Accepts FX plug-ins. Minimum requirements: 486-66 PC (Pentium 90 recommended); 12 MB RAM; Windows: 16-bit stereo sound card(s); 800x600 res.; 256 colors.

IQS Software Audio Workshop Plus

SAW Plus plays up to 16 mono or stereo tracks simultaneously on as many as four Window-compatible sound cards. Features include drag-and-drop nondestructive editing, SMPTE generate/trigger and lock/resolve, punch in/out, real-time vari-pitch, reverse, sample rate and format conversion, volume, mute, solo, pan, compressor/gate, limiter/normalizer, paragraphic equalizer, echo/delay effects on all tracks, and much more. Accepts FX plug-ins. Minimum requirements: Pentium 90; 16 MB RAM; Windows: 16-bit stereo sound card(s); 800x600 res.; 256 colors. 4680 S. Eastern Ave., Ste. D Las Vegas, NV 89119-6192 Phone 702/435-9077; Fax 702/435-9106 E-mail info@iqsoft.com Web site http://www.iqsoft.com

JBL Smart System

The Smart™ System, a \$695 Windows software package, performs acoustical measurement functions via a standard sound card. The FFT-based system can use music as a test signal, enabling in-performance analysis. Features: 1/2-channel spectrum analysis with logarithmic or linear frequency scales at octave, 1/2- or 1/4-octave resolution. Delay Locator™ displays and calculates alignment delays; and the Analysis Module offers various tools for displaying and analyzing stored acoustical data, including color displays of frequency and time domain information at various resolutions. Analysis functions include reverb time and early decay-time calculation and high-resolution analysis of user-defined "slices" of time and frequency-domain information. 8500 Balboa Blvd. Northridge, CA 91329 Phone 818/909-4500; Fax 818/787-0788

LCS LD-CS1 CueStation

The LD-CS1 CueStation™ is the system controller for Level Control System's new SuperNova Series™ of mixers and playback devices. The LD-CS1 incorporates CueMaster™ software with Be Inc.'s new multiprocessor computer platform and real-time pre-emptive multitasking OS. The LD-CS1 supports a virtual mixing surface with as many audio buses as inputs, controlling level, bus assignment, EQ, delay, multichannel panning, digital audio playback and more. 10061 Riverside Dr., #742 Toluca Lake, CA 91602 Phone 818/506-0051; Fax 818/506-3070 E-mail info@LSCaudio.com Web site http://www.LSCaudio.com

WEST L.A. MUSIC GUARANTEED LOWEST PRICES!

EVERY MAJOR BRAND

DIGITAL TAPE RECORDERS & WORKSTATIONS
CD RECORDERS • HARD DISC RECORDERS • MIXING CONSOLES
MICROPHONES • STUDIO MONITORS • MACINTOSH COMPUTERS
SOFTWARE • KEYBOARDS • GUITARS • AMPS • DRUMS

WE'LL BEAT ANY DEAL! CALL NOW!



STEVE STEVENS
WITH JOHN COX - PRO AUDIO DEPT.



GENE SIMMONS - KISS
WITH GLENN NOYES - DRUM DEPT. MGR.



FRANK SINATRA JR.
WITH RICHARD MIERS - KEYBOARD DEPT.

"WHERE THE PROS SHOP"

Phone and Fax orders accepted. We Ship Everywhere.



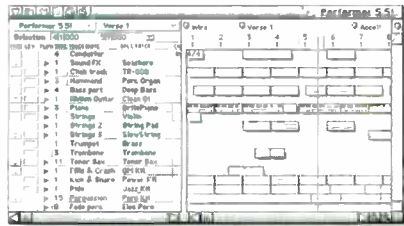
"Where The Pros Shop"
WEST L.A. MUSIC
11345 Santa Monica Blvd. West Los Angeles
Two blocks West of the San Diego (405) Freeway
(310) 477-1945 Fax: (310) 477-2476

**ALL MAJOR
CREDIT CARDS,
FINANCING,
AND LEASING.**

Lucid NB24 NuBus I/O Card

The NB24 from Lucid Technology™ is a low-cost, 24-bit plug-in card for direct digital connections into and out of most NuBus-equipped Apple Macs. Devices such as DAT machines or samplers connect directly to the NB24 via standard S/PDIF (IEC 958) ports for digital-domain transfers. External A/D and D/A converters (such as the Lucid Technology ADA 1000) can be added to bring analog signals into the digital domain. Don't throw away your NuBus computer because of changes driven by the computer manufacturers. Retail \$399.

Box 1583
Edmonds, WA 98020
Phone 206/742-1518; Fax 208/742-0564



Mark of the Unicorn Performer 5.5

Performer 5.5 is here! 100% PowerPC native, new tracks overview with drag-and-drop markers, unlimited takes per track, nondestructive MIDI output processing, virtual mixing board with unlimited mixdowns, QuickTime movie

playback, Macintosh internal speaker playback, Global selection, Smart Selections™ for "intelligent assistance" while editing, MIDI scrubbing, improved automated notation transcription, and much more. Together, Performer and Digital Performer have won an unprecedented four TEC Awards and two MacWorld World Class awards.

1280 Massachusetts Ave.
Cambridge, MA 02138
Phone 617/576-2760; Fax 617/576-3609
Web site <http://www.motu.com>

Micro Patent Neato CD Labeler

The NEATO™ CD Labeler Kit is the one-stop alternative for labeling CD-Rs. The days of using a permanent marker on freshly "burned" discs are over! Now, anyone can apply professional-looking labels to CD-Rs easily and inexpensively. Whether you are making CDs for data storage, multimedia or audio recording, the NEATO is the fastest way to clean up your image. Just follow the simple three-step process: 1. Design your own custom label graphics on any computer (Mac or PC); 2. Print your labels on any printer (laser or color ink-jet); 3. Apply your printed labels with the amazing NEATO CD Labeler.

250 Dodge Ave.
East Haven, CT 06512
Phone 203/466-5170; Fax 203/466-5178
E-mail bcronin@micropat.com
Web site <http://www.neato.com>



MTU MicroCD 2.0

Micro Technology Unlimited's MicroCD™ 2.0 software fully automates audio CD mastering, creating all files required for Red Book disk-at-once writing. Unlike complex text/list PQ code editors that require high skill, even novice users instantly place graphic flags to increment track IDs with or without prepag silence and index IDs within tracks. MicroCD writes to popular SCSI CD recorders at speeds of 1, 2, 4 and 6 times. Requires Windows 3.1 or 95 and MicroSound. Retail is \$395.

6900 Six Forks Rd.
Raleigh, NC 27615-6427
Phone 919/870-0344; Fax 919/870-7163
E-mail info@mtu.com
Web site <http://www.mtu.com>

Opcodes Studio Vision Pro 3.5

Studio Vision Pro is the first software program to combine Macintosh MIDI sequencing software with integrated digital audio recording and editing. Version 3.5 features Power

—LISTING CONTINUED ON NEXT PAGE

THE PROJECT STUDIO EXPERTS



WORLDWIDE DELIVERY



- ▶ DIGITAL & ANALOG MULTITRACKS & CONSOLES
- ▶ EFFECTS, MONITORS, MICS & PRE-AMPS
- ▶ KEYBOARDS, GUITARS & ELECTRONIC PERCUSSION

THE LARGEST
SELECTION OF
THE BEST
PRODUCTS IN THE
BUSINESS

Trade - Ins Welcome
Financing Available
67 Years In Business

FREE PROFESSIONAL ADVICE

CARUSO MUSIC

94 State Street ▶ New London, CT 06320 USA ▶ Fax: 860-442-0463 ▶ E-mail: sales@caruso.net ▶ <http://www.caruso.net>

CALL NOW **860-442-9600**



CALL TODAY, YOU MAY BE PRE-APPROVED FOR A \$20,000 LINE OF CREDIT ACCOUNT

USE READER SERVICE CARD FOR MORE INFO

DSP30RM—The Rackmount That is More Than an Audio Analyzer

—LISTING CONTINUED FROM PREVIOUS PAGE

Mac-native code for speed, enhanced support for Pro Tools III and TDM, plus user interface improvements including user-definable key sets and consoles with fader grouping. Retails around \$995.

3950 Fabian Dr.
Palo Alto, CA 94303
Phone 415/856-3333; Fax 415/856-3332
E-mail info@opcode.com
Web site <http://www.opcode.com>



Retail \$2,195

Standard features: A 19" DIGITAL rack mount RTA with instrument microphone, duplicate line and mic connectors on front and rear plus built-in pink noise.

Some of the many features are DSP triple tuned ANSI 1/3 octave filters, 85dB window, LEQ time averaging, sum and subtraction modes, plus SPL in FLAT, A, C, or USER weighting.

A partial list of expansion features include loudspeaker timing, RT60 and THD measurements plus an RS232 computer interface with software for PC or Macintosh based systems.



<http://www.gold-line.com> goldline@i84.net

Box 500 • West Redding, CT 06896 • Phone: (203) 938-2588 • Fax: (203) 938-8740

USE READER SERVICE CARD FOR MORE INFO



Pinnacle RCD5040 CD-R System

Pinnacle Micro Inc. introduces its next generation of affordable recordable CD storage systems with up to a 4x (quad) CD reader and 2x CD recorder. The RCD5040 comes complete with all the hardware and software necessary to make low-cost custom CDs. The RCD5040 is ideal for data archiving to replace tape drives, giving users fast, random access to data and guaranteed reliability. It can also be used to create audio and multimedia CDs. \$999 external, \$899 internal.

19 Technology Drive
Irvine, CA 92718
Phone 714/789-3000 or 800/553-7070; Fax 714/789-3150
E-mail jenpnclpr@aol.com
Web site <http://www.pinnaclemicro.com>

Plextor 8PleX

Plextor's 8PleX is a high-performance SCSI CD-ROM with a 1200KB/sec. data transfer rate and an access time of 115 ms. The 8PleX offers true plug-and-play installation; compatibility with Windows 95, Windows NT, CD Plus and Enhanced CD; digital audio extraction at 8x (1200KB/sec.) speed, suitable for using as a source in direct writing of CD-AD to CD-R or HDD as .WAV files. Two-year full warranty—parts, labor, replacement. List price: \$419 internal, \$519 external.

Plextor PlexWriter

PlexWriter is a 2x recorder/4x reader, with a 5MB/sec. burst (SCSI-2) and a 512KB buffer. The PlexWriter is Windows 95 plug-and-play compatible; writes CD-ROM Modes 1 and 2, form 1 and 2, CD-DA, CD-1 and Enhanced CD; creates Audio, DOS, Mac, UNIX and CD-1 titles; and supports disk-at-once, track-at-once, and multisession writing modes. It is the ideal solution for archiving data, professional audio capture, data distributing and CD-ROM publishing. List: \$859.

4255 Burton Dr.
Santa Clara, CA 95054
Phone 408/980-1838; Fax 408/986-1010
E-mail info@plextor.com
Web site <http://www.plextor.com>

QDesign i-Media Audio MPEG Decoder

The i-Media Audio MPEG Decoder provides real-time audio decoding and playback of 48kHz stereo audio files from a standard Pentium 75 computer equipped with a Sound Blaster-compatible card. The decoder supports all MPEG Layer I and II sample rates and bit rates as well as down-sampling capability for low-bit-rate applications. Software developer's kits including 16- and 32-bit or dynamic link libraries are available to VARS and OEMs. Price: \$75.

25 Years of Exceptional Audio

studio consultants, inc.

321 West 44th Street
New York, NY 10036
(212) 586-7376

BRVSTON

api



Westlake Audio



GENELEC



Prism

Aardvark, API, Apogee Electronics, Audix, B&B Systems, Bryston, Calrec, Drawmer, Eventide, Fairlight, Gefen Systems, Genelec, Lexicon, Middle Atlantic, Mytek, PMC, PrismSound, Sonic Science, Sonic Solutions, SoundField, Sound Ideas, Star Case, Westlake, White Instruments, Z-Systems and other exceptional audio products.

Equipment, support, and design services for professional audio facilities and broadcasters in the New York area—since 1971.

QDesign i-Media Audio MPEG Pro

i-Media Audio MPEG Pro is the first studio-quality MPEG compression product to provide real-time audio encoding from a live or recorded audio source entirely in software. Operating on a standard PC with a Sound Blaster-compatible card, i-Media Audio brings high fidelity to the professional audio and multimedia user at a fraction of the price of MPEG hardware. i-Media Audio is fully compatible to all MPEG Layer I and II audio codecs. Price: \$395.

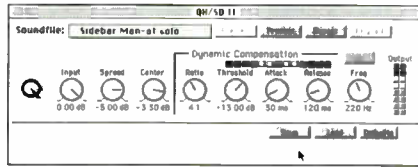
340-1122 Mainland St.
Vancouver, B.C., Canada V6B 5L1
Phone 604/688-1525; Fax 604/688-1524
E-mail mchan@qdesign.com
Web site <http://www.qdesign.com>

QSound QSYS/TDM (Upgraded Version)

This new version of the QSound software plug-in for Digidesign Pro Tools provides four independent channels of 3-D audio localization, extending sound placement options well beyond normal stereo. Through support of new features in Pro Tools 4.0, QSYS/TDM now provides move automation in the same manner as the legendary QSystem™ hardware processor. QSound's unique highpass-process filter, which helps balance placement, low-end performance and mono-compatibility, is now adjustable on a per-channel basis. List price: \$995.

QSound QX/SDII (Upgrade)

A software plug-in for Digidesign's Sound Designer II that allows the user to "place" stereo signals far beyond the normal left/right boundaries in a conventional two-speaker setup. Has a "Dynamic Compensation" section which provides control over amount of spread (QSound) versus presence or absence of center (mono) information. List price: \$295.



2748 37th Ave. N.E.
Calgary, Alberta, Canada T1Y 5L3
Phone 403/291-2492; Fax 403/250-1521
E-mail proaudio@qsound.com
Web site <http://www.qsound.ca>

Ricoh RO-1420C CD Recorder

The 2MB-buffer version of the RO-1420C eliminates data buffer underrun problems by adding more memory. With double the buffer of other low-cost CD-R drives, the 2MB model improves the reliability of writing on slower computer systems and improves reliability when recording over a network. The 2MB version is ideal for audio and video applications that place heavy performance demands on the host computer to maintain data flow at higher recording speeds. Users who wish to use a parallel-to-SCSI arrangement to connect a CD-R drive to a desktop PC or notebook are also able to record reliably at double speed, where most smaller buffered CD-R drives usually fail.

3001 Orchard Parkway
San Jose, CA 95134
Phone 800/955-FILE

Sharp QD-101MM Flat Panel LCD Monitor

Ultra-compact, 10.4-inch, 16-million-color TFT active-matrix LCD multimedia computer/video monitor. Provides full-color video and PC applications in a space less than 2"

deep. 640x480 VGA/Mac computer capability, built-in composite (NTSC/PAL/SECAM) and S-video inputs and audio input (with built-in speaker). Side-mounted connectors for professional applications, low power consumption and EMI emissions. Dimensions: 11x8.2x1.85 inches. Weight: 3.1 pounds. List: \$2,995.

Sharp Plaza, Mail Stop One
Mahwah, NJ 07430-2135
Phone 201/529-8731; Fax 201/529-9636
E-mail ProLCD@SharpSEC.com
Web site <http://www.SharpSEC.com>

Sonic Foundry Sound Forge 4.0

Sound Forge 4.0, the most comprehensive sound editor for Windows, now supports Video for Windows (AVI), RealAudio (RA) and Java (AU) files. Create soundtracks and special effects. Drag and drop sections for fast mixing or to create loops and regions. Effects include Dynamics (Graphic/Multi-band), Noise Gate, Pitch (Bend/Shift), EQ (Graphic/Parametric/Parametric), Time (Compress/Expand) and Resample. Proprietary and third-party plug-in modules are available. Ships in native versions for Windows 95, all Windows NT platforms and Windows 3.1 on a single CD-ROM. Retailers around \$495.

100 S. Baldwin St., Ste. 204
Madison, WI 53703
Phone 800/577-6642; Fax 608/256-7300
E-mail sales@sfoundry.com
Web site <http://www.sfoundry.com>

Spatializer Audio Labs Spatializer PT3D

The Spatializer® PT3D™ 3-D Audio Pro Tools TDM plug-in provides real-time 3-D audio processing for the Pro Tools digital audio workstations equipped with TDM. Users can

—LISTING CONTINUED ON NEXT PAGE

And you thought our selection and service were

Unbelievable!



For the world's largest selection of electronic instruments, guitars and accessories, ready for immediate delivery.... Call us today for special prices or a free catalog.

We perform...so you can perform!

**OUR PRICES
ARE MAGIC TOO!**

TOLL FREE **1-800-348-5003**

LOCAL

1-219-272-8266

*Rock 'n
Rhythm*

a division of

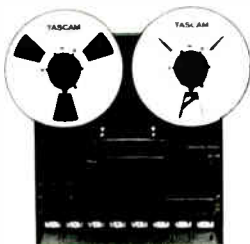
the Woodwind & the Brasswind

19880 State Line Rd. South Bend, IN 46637

USE READER SERVICE CARD FOR MORE INFO

RECORDING EQUIPMENT

—All Major Brands—



FOR STUDIOS/HOMES CHURCHES/CLUBS

- Reel to Reel Decks (2-4-8-16-24 Track)
- Cassette Decks • Mixing Boards
- Mikes • Studio Monitor Speakers
- Special Effects Units Accessories
- Digital Recording

TASCAM
TEAC Production Products



- VOLUME DEALER
- NEW & USED
- E-Z TERMS
- ALL MAJOR CREDIT CARDS
- PROFESSIONAL ADVICE

Call for pricing information.

RHYTHM CITY

1485 NE Expressway
Atlanta, Georgia, 30329

1-404-320-SALE • 1-404-320-7253

RHYCITY@aol.com

Special Pricing for Package Systems.

USE READER SERVICE CARD FOR MORE INFO

WHITE L-C SERIES, 4200A, 4400, 4240A

ENGINEERED FOR
CRITICAL LISTENING ROOMS



SEE US AT AES BOOTH # 413

The White L-C series is designed for studios and other critical listening environments, where transparent and precise EQ with minimum phase is not a wish . . . It's a COMMAND.

From the **ORIGINATORS OF EQUALIZATION**

1514 Ed Bluestein Blvd.
Austin, Texas 78721



Phone (512) 389-3800
FAX (512) 389-1515

• AES NEW PRODUCTS GUIDE 1996

—LISTING CONTINUED FROM PREVIOUS PAGE

position any number of sounds in space in real time, using the Pro Tools panning sliders and a minimum of system resources. The PT3D also provides level meters, sum/difference meters and a Spatial Impression Meter™ for an intuitive and ergonomic display. Retailers around \$399.

20700 Ventura Blvd., Ste. 134

Woodland Hills, CA 91364

Phone 818/227-3370; Fax 818/227-9750

E-mail pt3d@spatializer.com

Web site <http://www.spatializer.com>

True Image Audio Winspeakers

Now available for Mac and Windows 95, the Speaker Design Toolbox shows designers the performance achievable by any driver in a variety of enclosure types. The software provides calculators for designing passive cross-overs, impedance compensation networks and attenuators as well as rectangular, trapezoidal and bandpass cabinets.

399 W. Felicita Ave, Suite 102

Escondido, CA 92025

Phone/fax 619/480-8961

Web site <http://members.aol.com/spkrtools>

Waves L1 for Sound Forge

The L1 Ultramaximizer is now available for Sonic Foundry's Sound Forge on Windows 95 platforms. Many pro users say it's the best peak limiter in the world. Ideal for getting hot levels with minimal side effects, the L1 is a must-have for all mastering, from CDs to video games. L1 incorporates IDR™ (Increased Digital Resolution), the noise-shaped dither process from Waves that improves the quality and dynamic range for very quiet sound. List is \$600.

6716 Central Ave. Pike, Ste. 8

Knoxville, TN 37912

Phone 423/689-5395; Fax 423/688-4260

E-mail waves@waves.com

Web site <http://www.waves.com/waves>

Wave Computing StudioPC

The StudioPC from Wave Computing is a custom-configured, rackmount, IBM-compatible PC with recording software pre-installed. Most popular MIDI and hard disk packages are available—Cubase, Cakewalk, Logic, Spectral, Sound Forge, Pyramix, SoundScape, etc. All systems are burned-in, tested and certified 100% compliant with the recording software, which is already installed and configured to run "right out of the box." Intel CPUs from 100 to 200 MHz. Prices start at \$1,489; software packages purchased separately through authorized dealers.

50 Bordeaux Terrace

West Milford, NJ 07480

Phone 201/728-2425; Fax 201/728-2931

E-mail nextwave@haven.ios.com

Web site <http://haven.ios.com/~nextwave/>



Loudspeaker and
Monitoring Systems

Acoustic Control Flagship Series

A complete series of Line Array full-range and full-range/bi-amp-capable enclosures, monitors and subwoofers, headed by SubTeq 2.6 subwoofer, claimed as "the world's loudest and lowest speaker." Incorporating Samick's patented Line Array technology, greater sound projection is provided over longer distances than conventional compression horn-based speakers. SubTeq 2.6 recognizes signals under 40 Hz as sound, has diaphragm movement measuring a complete 4 inches and represents the first major advancement in speaker technology in 30 years.

A division of Samick Music

18541 Railroad St.

City of Industry, CA 91748

Phone 818/964-4700; Fax 818/965-5224
 E-mail samickmusic@earthlink.net
 Web site http://www.samick_music.com

600 Cecil Street
 Buchanan, MI 49107
 Phone 616/695-6831; Fax 616/695-4744



Altec Lansing DTS Speakers

Five exciting new loudspeakers have debuted from Altec Lansing: the under-baffled DTS-94 and DTS-99, the DTS-200 portable/in-wall system and the three-way DTS-640 and DTS-941. The DTS-200 and the DTS-640 embody Altec Lansing's Duplex true point source technology, which physically aligns the high-frequency compression driver and low-frequency driver for exceptional vocal intelligibility and enhanced musical definition. All five systems are designed for small to midsize installations, such as houses of worship, auditoriums, and hotels.



Ambiance Acoustics California Cube

The California Cube loudspeaker system incorporates four 4.5-inch drivers recessed on a decoupled polyethylene baffle with outboard active equalization. No crossovers! Hand-built construction and audiophile-grade components such as metal film resistors, polypropylene capacitors and exotic ICs combine cutting-edge technology with meticulous attention to detail. Sensitivity: 91 dB/w/m. Frequency response: 45Hz-15kHz \pm 3dB. Suggested amplifier: 10-250 watts. Nominal impedance: 8 ohms. Five-year limited warranty. Factory-direct prices start at \$1,995/pair, with EQ.

PO Box 2715
 San Diego, CA 92198
 Phone 619/485-7514; Fax 619/485-7514



Apogee Sound C-3 Concert Loudspeaker

The new Apogee Sound C-3 Concert loudspeaker has the same footprint as the well-known Apogee 3x3 and offers wide-range response at high sound pressure levels in a smaller format enclosure. The three-way, tri-amped C-3 provides precise pattern control and a low-distortion, natural sound quality. The C-3 is fully arrayable when coupled with like units, with unique modular rigging hardware that is available as standard equipment.

2180 S. McDowell Blvd.
 Petaluma, CA 94954
 Phone 707/778-8887; Fax 707/778-6923

ATC Monitors

ATC will introduce a new line of active studio monitors designed for the pro audio market at the AES '96 show. The line will include ATC's SCM 50A-Pro and SCM 100A-Pro active speakers featuring LF Contour Control for bass EQ, Input Level Trim, Front Panel Indicator for power, bass and mid-range overdrive and a new No Grill cabinet design. In addition, ATC will unveil the SCM 20ACTIVE monitor, high-

—LISTING CONTINUED ON NEXT PAGE

Demeter
 amplification

Cutting Edge
 Tube and
 Solid State
 Design Technology
 Provide A
 Combination Of
 Sound, Quality
 And Value
 Unequaled
 In The Industry.

Available
 Spring 1996

Introducing The H Series From Demeter Amplification



Innovation with tubes since 1980

Demeter 2912 Colorado Avenue - #204 - Santa Monica, CA 90404
 Factory 310 829 4383 - Facsimile 310 829 3755
SEE US AT AES BOOTH # 112

USE READER SERVICE CARD FOR MORE INFO

—LISTING CONTINUED FROM PREVIOUS PAGE

lighting ATC's Super Linear Magnet technology and a die-cast aluminum cabinet. Distributed by HHB 43 Deerfield Rd. Portland, ME 04101 Phone 207/773-2424; Fax 207/773-2224 E-mail 75671.3316@compuserve.com

ATM Fly-Ware Megs Series

The Megs Series pivotal loudspeaker rigging system will retrofit into most loudspeaker enclosures and will support up to 2,100 pounds. All components are rated for overhead suspension and include product traceability. One enclosure can be suspended for only \$240 retail. 21000 S. Wilmington Ave. Carson, CA 90810-1247 Phone 310/834-5914; Fax 310/834-3042 E-mail 102111.647@compuserve.com



Audix PH-15 and PH-25 Speakers

The PH-15 and PH-25 self-powered monitor speakers offer outstanding performance in a compact package. Both systems rely on a newly designed amplifier delivering 40 watts RMS power, balanced inputs, thermal protective circuitry and internal toroidal power supply (no wall warts!), plus an automatic on/off circuit. The PH-25 uses a dual woofer design, producing 6 dB more SPL than the single woofer PH-15. Shielded versions are available for \$20 more per pair.

Audix PH-15/PH-25 Upgrade

Although the PH-15 and PH-25 rely on the same internal amplifier, the PH-25 puts out an additional 6 dB SPL due to its double woofer and high sensitivity. Additional upgrades to the PH series include a new amplifier that provides 40 watts RMS/50 watts peak power (2x the earlier design). Also, balanced inputs, thermal-protective circuitry, an internal Toroidal Power Supply and an automatic on/off circuit. MSRP: PH-15 \$429, PH-25 \$579. 9730 S.W. Hillman Ct., #62 Wilsonville, OR 97070 Phone 503/682-6933; Fax 503/682-7114 E-mail Audix@APC.NET



Bag End Gem Series

The Crystal, Sapphire and Quartz enclosures are the newest addition to Bag End's high-performance loudspeaker line and offer high-output drivers in arrable long-throw config-

urations. Incorporating Time-Align[®] technology along with ELF low-frequency response, the "Gem" series represents state-of-the-art fidelity in high-output compact enclosures. The Quartz contains four 18-inch ELF drivers in a 12-cubic-foot enclosure with a perfectly flat response from 20 to 70 Hz.

Bag End ELF-5.1 Processor

The ELF-5.1 processor is designed for cinema post-production facilities and video editing suites. Featuring five full range inputs and one low-frequency effects input, the ELF-5.1 offers 5-channel highpass outputs and 6-channel summed ELF output. "Effects Compability" level control allows the .1 (sub) channel to be combined in the correct proportion to the low-frequency content on the other five channels. The ELF-5.1 features a full-range 8Hz dual integrator. Box 488 Barrington, IL 60011 Phone 847/382-4550; Fax 847/382-4551 E-mail info@bagend.com



Celestion KR Series

The KR Series are compact sound reinforcement enclosures constructed from injection-molded polypropylene. All KR cabinets feature a futuristic-styled cabinet design and a modern look to complement any environment. All models offer specially designed high-performance drivers, with Polyswitch[™] protection on high-frequency components and Flexirol[™] surround for greater driver excursion. KR series cabinets are compatible with mounting hardware for installations and are suitable for high-level installed sound or portable vocal PA. use.

Celestion Road Series

The Road Series enclosures are made using a revolutionary new polymer-molding process. Their double-skin Polycore[™] material provides exceptional acoustic stiffness from a lightweight, indestructible cabinet. Integral to the molded enclosures are exponential or constant directivity horns. Cast frame drivers use Celestion's Flexirol[™] surround. The smooth second- and third-order passive crossovers use specially selected low-loss, high-power components and feature a Polyswitch[™] protection circuitry, accessed via Speakon[™] or standard 1/4-inch jack connectors. 89 Doug Brown Way Holliston, MA 07146 Phone 508/429-3600; Fax 508/429-3699

Community PC100 Pattern Control Horns

Community Professional Loudspeakers is introducing new high-power, horn/driver technology with the 300Hz, 2.8-inch throat, PC100 Series Pattern Control Horns. The PC100 horns are constructed from hand-laminated, molded fiberglass. These large-format horns will be available in 90°x40°, 60°x40° and 40°x20° patterns. They are designed to accept Community's new carbon fiber diaphragm 2.8-inch compression driver, the EM280 extended midrange, making them ideal for one-way voice paging or as the midrange for multiway component systems.

Community PC300 Pattern Control Horns

Community Professional Loudspeakers is introducing new high-power, horn/driver technology with the 600Hz, 2.8-inch throat, PC300 Series Pattern Control Horns. The PC300 horns are constructed from hand-laminated, molded fiberglass. These medium-format horns will be available in 90°x40°, 60°x40° and 40°x20° patterns. They are designed to accept Community's new carbon fiber diaphragm 2.8-inch compression drivers, the EM280 extended midrange and EM282 mid-high range, to provide superior response and pattern control for the mid-high frequency range. 333 E. Fifth St. Chester, PA 19013-4511 Phone 610/876-3400; Fax 610/874-0190 E-mail info@community.chester.pa.us Website <http://www.community.chester.pa.us>

Digital Process/IMS Speaker Enclosures

Our Integrated Material Technology (IMT) 22x17x15-inch trapezoidal molded boxes give improved acoustical performance along with the rugged good looks of a polypropylene outer skin. Stand adapter, grill recess and handles are molded in. IMT boxes are available OEM; Integrated Music Systems also has three models available including a 12-inch coaxial and a 12-inch three-way that weighs only 30 pounds. List price: \$65/box, \$385/coaxial and \$244/three-way.

Digital Process/IMS QX1

An addition to IMS quarter-rack devices, the QX1 is a second-order, simple-to-use, ultralow-distortion/noise crossover that sums the audio for the subwoofer out and maintains stereo for the above -120Hz outputs. 1791 Kirkham Way Salt Lake City, UT 84119 Phone 801/966-7148; Fax 801/262-7379

Dynaudio Acoustics Near-Field Speakers

Featured for the first time at the 101st AES convention will be a brand-new, active, two-way near-field speaker from Dynaudio Acoustics. Price: to be confirmed. Distributed by Audio Exchange International Inc. 357 Liberty St. Rockland, MA 02370 Phone 617/982-2626; Fax 617/982-2610 E-mail sales@aximarketing.com Web site <http://www.aximarketing.com>



Eastern Acoustic Works KF860

The EAW KF860 Virtual Line Array (VLA) three-way loudspeaker system is a focused line array providing higher Q, particularly in the lower midbase frequencies. It supplies

—LISTING CONTINUED ON NEXT PAGE

Synthesized UHF wireless...



... like you've never seen before

- 256 frequencies in 100kHz steps
- Computer monitor and control
- AutoSearch scanning function
- AutoTracking front-end filters
- Dual-band compandor
- Need we say more?

The UDR200B receiver is supplied with LecNet™ software to run under the Windows® operating system. The control panel for an individual receiver shown here includes indicators of present receiver settings and levels, an edit section to make changes, store and retrieve files, and a spectrum analyzer section that provides a spectral plot of the tuning range of the receiver.

The AutoSearch scanning function provides a convenient and accurate way to conduct an RF site survey and display the results in the spectrum analyzer section. The AutoSearch function can scan all 256 frequencies in less than a minute, or selected frequency groups even faster.

Call for a free demo disk
on the most advanced
wireless in the world.

SEE US AT AES!

(800) 821-1121



LECTROSONICS

Innovative Engineering

581 Laser Road, Rio Rancho, NM 87124 USA
FAX (505) 892-6243 - <http://www.lectro.com>

— LISTING CONTINUED FROM PREVIOUS PAGE

tight vertical pattern control over a wide operating band, housed in a low-profile, vertically arrayable enclosure. As a smaller number of vertical arrays is needed to provide coverage, the number of arrival times at any given location is reduced. The KF860 also features an adaptation of the Tuned Dipolar Array (TDA) concept, which solves problems of low-frequency directivity. List: \$9,667.

One Main St.
Whitinsville, MA 01588
Phone 508/234-6158; Fax 508/234-8251
Web site <http://www.eaw.com>



Electro-Voice DeltaMax DMS

The next-generation DeltaMax™ loudspeaker systems have DMS model numbers. Refinements raise vocal clarity and increase output, ease installation and reduce overall weight. DMS models feature new drivers, woofers and horns, new cabinet configurations, new hardware, new rotatable horns in two models and upgraded electronic controllers. The two new additions, the DMS-1183/64 18-inch three-way loudspeaker and the DMS-1181 single 18-inch subwoofer are added to the reconfigured DMS-1122/85 12-inch, DMS-1152/64 15-inch two-way and DSM-2181 dual 18-inch subwoofer.

600 Cecily St.
Buchanan, MI 49107
Phone 616/695-6831; Fax 616/695-4744



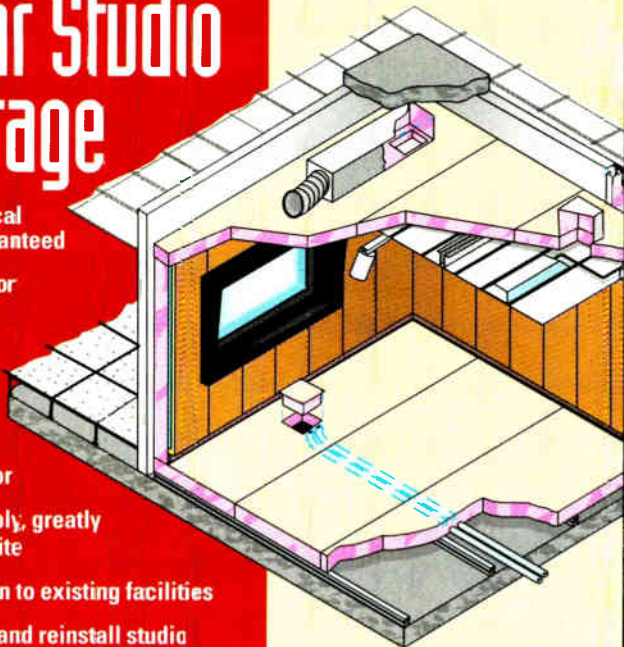
Event Electronics 2020-BAS Monitors

A bi-amped near-field studio system with 130- and 70-watt Class-AB amps in each cabinet, the 2020-BAS combines an 8-inch woofer and 1-inch tweeter in a 15.75x10.25x11.75-inch, front-ported enclosure. Features: power/clipping LEDs, variable ±3dB HF/LF trims, circuit breaker and Neutrik combo ¼-inch/XLR connector for balanced/unbalanced inputs at -10 or +4dB levels. Retail: \$999/pair; unpowered version with passive crossovers is \$399/pair.

Box 4189
Santa Barbara, CA 93140-4189
Phone 805/566-7777; Fax 805/566-7771

Modular Studio Advantage

- Enhanced acoustical performance, guaranteed
- Technically superior construction
- Custom designed to maximize floor space
- Visually pleasing, comfortable interior
- Quick field assembly, greatly reducing time on site
- Seamless transition to existing facilities
- Ability to relocate and reinstall studio
- Less expensive than standard construction



800/749-1460
415 E St. Elmo Rd., Austin, TX 78745
512/444-1961 FAX 512/444-2282

For the best performance, choose a modular enclosure from Acoustic Systems for your new studio's sound foundation.

USE READER SERVICE CARD FOR MORE INFO

24 Bit Digital I/O 18 Bit Analog Output

Professional
AES/EBU
Optical & Coaxial
S/PDIF

Presenting MultiWav Digital PRO:
The best in professional digital I/O for Windows.
Use MultiWav Digital PRO to make digital masters, digital mixdowns, sample edits, and direct transfer of audio files with NO GENERATION LOSS!

Use MultiWav Digital PRO to break the 16 bit Barrier! Master projects in full 24 bit audio fidelity!

MultiWav Digital PRO is software upgradable! Add new HARDWARE features from software!

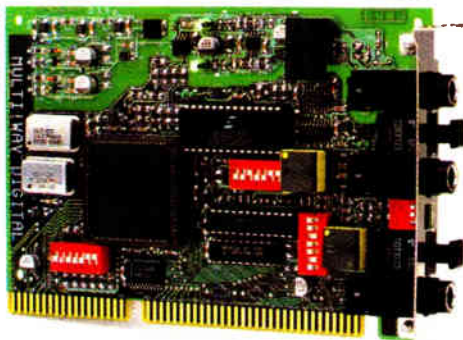
MultiWav Digital PRO installs easily into your EXISTING setup WITHOUT IRQs!

Use it with any WAV editor, such as SAW, Sound Forge, Samplitude, Cakewalk, PA...

Best of all, MultiWav Digital PRO sounds great! Use it for your most demanding work!



Pictured: MultiWav Digital PRO 18



Professional Digital I/O for Windows

MultiWav Digital PRO Series Features

- Professional AES/EBU Digital I/O Capability
- Optical & Coaxial S/PDIF Digital I/O Capability
- High Quality 18 Bit Analog Output (PRO 18)
- Real-Time Digital Format Conversion
- Software Upgradable Hardware Design
- Multi-Track Transfer Mode
- Shielded Digital Audio Transformers
- Jitter Reduction Circuitry
- Flexible Ground Strapping
- Independent Master or External Sync Clock
- Support for Multiple Cards in one PC
- 256/512 Bit Upgradable RAM FIFO Buffer

NOW, bundled with MultiWav Digital PRO is Sound Forge XP, Winner of the 1995 MultiMedia World All-Star Competition. This offer is limited. Contact ADB International for details.



For complete details, give us a call or visit our Web site.
ADB International Corporation • 2180 Pleasant Hill Rd., Suite A-5100 •
Duluth, GA 30136 • Voice: 770.623.1410 • Fax: 770.623.1629 •
E-Mail: info@adbdigital.com • Web: <http://adbdigital.com>

ADB and MultiWav are trademarks of ADB International Corporation.

dynaudio **acoustics**[®]

"WE ARE HONORED TO BE NOMINATED FOR THE
1996 TECHNICAL EXCELLENCE & CREATIVITY AWARD."

AES/L.A.
VISIT US AT
BOOTH 1311



CATEGORY:
STUDIO
MONITOR
TECHNOLOGY

BM15 Features:

- 2-way passive, front ported system
- Frequency Response of 40Hz to 22k-Hz
- High Sensitivity (88 dB/ 1W/ 1m)
- High Power Handling (amplifier range 100 - 250 Watts into 4 ohms, 1000W/Chl. peak)
- 8.5" bass driver driven by 4" voice coil (as used in our flagship M4 monitors)
- Modified Esotec tweeter (as used in M Series)
- Magnetically shielded for use with video monitors
- Supplied in mirrored image pairs for excellent stereo imaging

Retail price: \$1599/pr.

WHAT YOU WANT.

Dynaudio Acoustics & AXI thank these BM Series Dealers for their support

- | | |
|--|----------------|
| • Professional Audio Design, Boston | (617) 982-2600 |
| • Dale Electronics, NYC | (212) 475-1124 |
| • K&A Audio, Fort Lee, NJ | (201) 302-9180 |
| • Underground Sound, Nashville | (615) 242-2442 |
| • Studio Tech Supply, Dallas | (214) 358-0050 |
| • David Carroll Electronics, SF | (510) 528-8054 |
| • Berler Communications, Chicago | (708) 550-0321 |
| • Jon Dressel Associates, Minneapolis | (612) 338-1880 |
| • Coast Recording Equipment, Hollywood | (213) 462-6058 |
| • Cutting Edge Audio Group, SF | (415) 487-2323 |
| • Recording Media, Miami, FL | (305) 791-9797 |
| • Sound Chek, Metairie, LA | (504) 454-6331 |
| • SADiE, Nashville | (615) 327-1140 |
| • Tech Star Services, Nashville | (615) 242-2925 |
| • Music Loft, Greensboro, NC | (910) 378-1068 |
| • EAR Professional, Phoenix, AZ | (602) 267-0600 |
| • Klay Anderson Audio, Salt Lake City | (801) 942-8346 |

THE BM15 NEARFIELD FROM

dynaudio **acoustics[®]**

USA Distribution:

AXI

Audio Exchange International

T (617) 982-2626

F (617) 982-2610

www.aximarketing.com

Worldwide Sales Office:

Dynaudio Acoustics (UK) Ltd T +44 171 403-3808 F +44 171 403-0957



ATHAN CORPORATION

MTR-90 MOTOR & IDLER MODIFICATION

**TURN YOUR MTR-90 INTO
A MASTERING MACHINE!**



MAXIMIZE PERFORMANCE with MTR-90 Capstan & Idler Assembly Modifications:

- Smoother tape travel across the heads
- Prevent improper head wear
- High frequency tones lay down on tape without dB variation
- Reduce component flutter from .034% to .005% @ 15 ips.
- Improve transport stability
- Accurate location readings

Also note: Our exchange program reduces down time!

Call 415.589-5206 for references, more specifications & information.

USE READER SERVICE CARD FOR MORE INFO

• AES NEW PRODUCTS GUIDE 1996

Fender Contractor Systems

Fender Pro Audio introduces a new contractor version of its Tour Series loudspeakers. The contractor systems will have the same 13-ply Baltic Birch construction and reinforced flying hardware as the Tour Series. The series consists of 12-inch and 15-inch full-range cabinets and 18-inch and 2-15-inch subs. The Contractor Series will differ in that the finish will be a clear sealer ready for painting or finishing with a stain-receptive base coat.

7975 N. Hayden Rd.

Scottsdale, AZ 85258

Phone 602/596-9690; Fax 602/596-1384

Hot House Active Sub-Bass Systems

Designed for supplementing near-field to large-format main monitors, Hot House active subwoofers incorporate massive high-velocity drivers with internal amplifiers (up to 1,000 watts). Sixth-order tuned for both extended response to below 20 Hz and extreme reliability, and fed by adjustable high- and lowpass filters, optimum system integration with full-range speakers, and the environment is easily accomplished. Systems range from a single 10-inch to a twin 15-inch, with custom configurations available. Priced from \$2,999 (118dB peak) to \$5,999 (128dB peak SPL).

275 Martin Ave.

Highland, NY 12528

Phone 914/691-6077; Fax 914/691-6822



JBL Professional AS 3218

A three-way, large-format trapezoid enclosure designed for fixed installation, the AS 3218 weighs 185 pounds and measures just under 4 feet tall, 2 feet wide and 22.5 inches deep with 60° coverage. It features JBL's new 2242H Super Vented Gap™ 18-inch woofer and a new 2012H 10-inch cone driver specifically designed for the speaker's wooden midrange horn. A 2447J compression driver and Optimized Aperture Bi-Radial™ horn extends frequency response to nearly 20 kHz. List: \$3,995.

8500 Balboa Blvd.

Northridge, CA 91329

Phone 818/909-4500; Fax 818/787-0788

Mackie FP824 Studio Reference Monitor

Powered, bi-amped, mass-loaded, resistivity-damped sixth-order system using two 6.5-inch passive radiators. LF driver: 8-inch polypropylene cone; tweeter: 1-inch metal dome; free-field frequency response: ±1.5 dB 45-20 kHz; -3 dB points: 38 Hz and 22.5 kHz; peak SPL per pair (music on console at 1 m): >121 dB; power output: 150w/100w (LF/HF); electronic crossover: Linkwitz-Riley 24 dB/octave; balanced XLR and ¼-inch inputs; 15x10x12 inches; 32 pounds. Retail: \$1,498/pair.

16220 Wood-Red Road N.E.

Woodinville, WA 98072

Phone 206/487-4333; Fax 206/487-4337

E-mail mackie@mackie.com

Earthworks



Word of Mouth: "The first time I put up these mics I heard exactly what I wanted—clarity without harshness and fullness without being boomy." —*Carl Napa, Hit Factory.* "In a blind test on a grand piano we picked it over any other mic in our mic cupboard... we have a *big mic cupboard.*" —*Kevin Bacon, Axis Studios.* "For percussion... both the OM1 and the TC30K delivered absolutely explosive performance, with stunning realism and tight, punchy attacks." —*George Peterson, Mix Magazine.* "Overall performance excellent, and extremely versatile." —*Gota.* "Wonderful sound, fantastic value, we bought six TC30K's on the spot." —*Brian Masterson, Windmill Lane Studios.*

TC40K – 9Hz to 40kHz

TC30K – 9Hz to 30kHz



earthwks@jlc.net

Earthworks

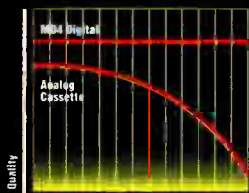
USA 603-654-MICS (6427) fax 6107

If You're Not Recording Your Tunes at CD Quality, Your Career Could Be at **Steak**



Medium.

The MD Data recording medium gives you 37 minutes of flawless digital audio on 4 tracks.



Track Bouncing (Number of Generations)

Rare.

You won't find another studio-quality recorder at this price. As opposed to cassette, MD4 offers noise-free, loss-less track bouncing.

Well Done.

Introducing the Yamaha MD4 Digital Multitrack Recorder. Never before could you record, edit and mix with CD quality for only **\$1199**. **Available now!**



YAMAHA MD4
DIGITAL MULTITRACK RECORDER

Quad SERIES

State-of-the-Art Studio Environment



**IAC
Acoustically
Rated
Components
For
All Your
Studio
Requirements**

FROM Noise-Lock® Doors and Windows; Tranquil-Aire® Ventilation Systems; Walls, Ceilings; Vibration Isolated Floors; SoundAbsorber and Diffuser Elements...

TO Complete TV/Radio, Recording & Music Studio Systems *custom-designed to your needs.*

INDUSTRIAL ACOUSTICS COMPANY

1160 COMMERCE AVENUE, BRONX, NY 10462
TEL: 718•931•8000 • FAX: 718•863•1138



USE READER SERVICE CARD FOR MORE INFO

Martin Audio WSX

The Martin WSX features a powerful 600-watt, 18-inch driver with magnet structure and suspensions specially engineered for very large linear excursion. The internal S-shaped folded horn—a Martin hallmark—is over 7 feet long and couples the driver to the airload by means of a modified hyperbolic expansion law. This results in an efficiency typically 5 dB greater than ported direct radiator sub bass systems and contributes to the exceptionally fast transient characteristic of the WSX.

Martin Audio W8C

The Martin W8C is designed for use in a flown array in large venues, or it can also be used above 120 Hz as a stand-alone array component in touring or club situations where the full-frequency low-mid band (850-3.5k Hz) is produced by a 6.5-inch cone driver loaded by a toroidal phase plug and horn which maintains constant 55-degree horizontal dispersion. Above 3.5 kHz, high frequencies are handled by a 1-inch exit compression driver.

Distributor: TGI North America
300 Gage Ave., #1
Kitchener, Ontario, Canada N2M 2C8
Phone 519/745-1158; Fax 519/745-2364

Meyer Sound Laboratories Inc. CQ-1

The CQ-1 is a self-powered reinforcement loudspeaker featuring amplifier and control electronics fully contained within the compact speaker enclosure. The CQ-1 offers coverage of 80°H/40°V, with SPL of 130dB continuous and 140dB peak. This product provides extremely tight control and predictable results for venues where acoustic spill-over is to be avoided.




Meyer Sound Laboratories Inc. CQ-2

The CQ-2 is a self-powered reinforcement loudspeaker featuring amplifier and control electronics fully contained within the compact speaker enclosure. The CQ-2 offers coverage of 50°H/40°V, with SPL of 130dB continuous and 140dB peak. This product provides extremely tight control and predictable results for venues where acoustic spill-over is to be avoided.

2832 San Pablo Avenue
Berkeley, CA 94702-2204
Phone 510/486-1166; Fax 510/486-8356
E-mail sales@meyersound.com
Web site <http://www.meyersound.com>

Vintage Gear?

Check out this issue's guide to classic equipment on page 84.



**MANHATTAN
PRODUCTION MUSIC**

Call 800-227-1954 or
212-333-5766 in NY State
for More Info

355 West 52nd St.
New York, NY 10019
Sixth Floor
Fax 212-262-0814

PRESENTS

APPLE TRAX

THE CUTTING EDGE MUSIC LIBRARY FOR THE 90'S

AVAILABLE NOW AS A SEPARATE LIBRARY OR WITH THE MANHATTAN PRODUCTION MUSIC LIBRARY.

Waves Accepted Here



digidesign®



A Division of Avid Technology, Inc

Adobe

MACROMEDIA



EMAGIC

Steinberg

**O P C O D E
S Y S T E M S I N C**

The Waves commitment

to sonic excellence means substance over flash.

Use Waves audio processing Plug-Ins with the best platforms in the market. Waves continues to add more platform support through our WaveShell technology, providing access to high-end audio processing, whether you have a basic PowerMac, PC or multiple Digidesign® DSP Farms™.

CALL
1-800-672-4128
FOR A
FREE
RECORDING &
LIVE SOUND
CATALOG!!!!

- LARGE SELECTION
- FAST DELIVERY
- GUARANTEED BEST PRICES
- 30-DAY Return Policy
- 30-DAY PRICE PROTECTION

Mail Order Center:
11711 Monarch St., Garden Grove, CA 92641

Retail Super Store: Music To The Max,
14200 Beach Blvd., Westminster,
CA 92683 (714) 379-1994

Mail Order Center Hours: Mon-Fri 6 am - 8 pm, Sat 7 am - 5pm, Sun 8 am - 5pm (Pacific Time)

Our 20th Year!
PRO SOUND & STAGE LIGHTING
RECORDING & LIVE SOUND EDITION

USE READER SERVICE CARD FOR MORE INFO

• AES NEW PRODUCTS GUIDE 1996



Platinum Audio Ltd. Session-1

Near-field studio monitor. Specifications: nominal impedance 6 ohms, sensitivity 84 dB (1w @ 1m), recommended amplifier power 100-300 watts RMS/channel, width 8 inches, depth 13 inches, height 13.5 inches, weight 26.5 pounds each, finish textured black.

10 Commerce Park N., #12
Bedford, NH 03110

Phone 603/647-7586; Fax 603/647-7290

E-mail Sales@platinumaudio.com

Web site <http://www.platinumaudio.com/>

Precision Audiotechnics Pearls

Pearls™ are custom-molded in-ear monitors. For use in concert sound reinforcement, broadcast, studio and theater. Pearls are made with Vinyl Seal™ for comfort.

830 Sunshine Lane
Altamonte Springs, FL 32714

Phone 407/774-8022 or 800/711-7317; Fax 407/831-0909

E-mail gene@precisionweb.com

Website <http://www.precisionweb.com>

Professional Audio Systems (PAS) LT-2

The PAS LT-2 Long Throw Mid/High Pack concentric horn design provides an identical acoustical source throughout the entire frequency range for a seamless transition between mid and high frequencies. The advantage of this point-source design is magnified when arraying multiple LT-2s for wider coverage.

2270 Cosmos Court

Carlsbad, CA 92009

Phone 619/431-9924; Fax 619/431-9496

ProSystems Horn Driver Model 440

The model 440 horn driver from ProSystems/AWS Group is a more economical version of the model 425 driver. This is based on patented HFVS™ High Frequency Vibrational Shell Tonology. The 440 has a frequency response of 1,300 to 20k Hz, power handling of 60 watts and an impedance of 8 ohms. Suggested list price is \$175.

65 36th St.

Wheeling, WV 26003

Phone 304/233-2223; Fax 304/233-2258

E-mail 70661.2763@compuserve.com

Quested VS2205 Monitor

A self-powered near-field speaker, with two 5-inch woofers and a 28mm ferrofluid-damped soft dome HF unit. The bi-amped system has 150W RMS total and offers switchable LF and HF contouring. A VS1112 powered subwoofer is optional.

Quested VS2108 Monitor

A powered near-/mid-field monitor, with single 8-inch woofer 28mm ferrofluid-damped soft dome tweeter and switchable LF and HF contouring. The bi-amped system has 100-watt amps driving each component in the two-way system. A VS1112 powered 12-inch subwoofer is optional.

What Do
smashing pumpkins no doubt
have in common.. stone temple pilots

Rumbo Recorders
17 years of chart topping hits

for booking or studio info contact: Vicky Camblin
(818) 709-8080

check us out on the web @ <http://www.pobox.com/~rumbo>

Paranormal EQ



It's uncanny. The precision and sheer musicality of Ghost's EQ will take your breath away.

Drawing on 22 years of Soundcraft experience, Ghost's new EQ is perfectly in tune with today's music.

Two fully parametric, overlapping mid bands with shelving high and low filters redefine the classic British EQ.

But there's much more.

Each channel strip benefits from its own dedicated circuit board and supports both the main input plus a mix B path



for tape or other input signals.

Ghost's flexibility

and fidelity are staggering.

The signal path quiet, true and uncompromised.

And the automated mutes, just part of



Ghost's comprehensive machine control and MIDI

implementation,

don't so much cut, as fade very quickly. There are no thumps and no clicks.

Ghost's microphone preamplifier, ProMic, boasts a better gain to noise performance than



you'd expect on consoles costing many times more.

We could go on, but to appreciate fully the

ergonomic and audio integrity of Ghost you need to see and hear one in the flesh.

So call 818 227 1800 to find out more.



Soundcraft

Ghost

A Harman International Company

—LISTING CONTINUED FROM PREVIOUS PAGE

Distributed by Audio Independence
9288 Gorst Road
Mazomanie, WI 53560
Phone 608/767-3333; Fax 608/767-3360

Radian Model 850/835 HF Drivers

The Radian Model 850 (2-inch throat exit) and 835 (1.4-inch throat exit) are designed for use in professional loudspeaker systems used in fixed installation and touring applications. The 850 and 835 feature structural alloy aluminum domes and Mylar suspension for low-distortion output and the elimination of fatigue failures. New bonding material and techniques permit the 850 and 835 to handle 100 watts of continuous power above 1 kHz. A new manufacturing process allows for exceptional high-frequency performance.

Radian Model 5215 Coaxial

The Radian 5215 coaxial loudspeaker is designed for professional use in fixed installations and touring applications. 5215 coaxials provide high efficiency and accurate reproduction with extended bandwidth. The 5215 employs Radian's full-sized 2-inch compression driver coupled with a 4-inch voice-coil, 400-watt 15-inch woofer. This combination provides the wide bandwidth of a studio monitor with the output and reliability essential for live sound reinforcement.

600 N. Batavia St.
Orange, CA 92668
Phone 714/288-8900; Fax 714/288-1133
E-mail RADIANT@BRIDGEA.com

Spendor SA-200 and SA300

The Spendor SA200 and SA300 are bi-amp powered two-way reflex near-field reference monitors. The LF is powered by a 50-watt amp while the HF is powered by a 130-watt amp. With over 25 years in speaker design, Spendor is renowned for producing accurate monitoring systems. Features include switchable HF and LF equalization, preset input gain control (-6dB to +18dB) and active filters.

Distributed by Sascom Marketing
34 Nelson St.
Oakville, Ontario, Canada L6L 3H6
Phone 905/469-8080; Fax 905/469-1129
E-mail sales@sascom.com
Web site <http://www.sascom.com>

Stage Accompany M59 Studio Monitor

The Master Series M59 large-format studio monitor uses a ribbon for high frequency and provides HiFi quality at 125 dB peak sound pressure levels. The M59 combines the accuracy of a ribbon near-field with the output of a main monitor. This active, three-way system consists of an SA8535 compact driver (1 kHz-32 kHz), two SA1203 12" cone mids, and two SA1513 15" loudspeakers (30 Hz-100 Hz). Frequency response: 30-30k Hz. Max RMS power (W) LF/MF/HF: 800/800/60. Physical dimensions 908x965x569 mm. Retail price: \$6,950.

6573 Wyndwatch Dr.
Cincinnati, OH 45230
Phone 513/624-9977; Fax 513/232-8709

Sumiko REL Studio II Powered Sub

Linkwitz-Riley extended response design with two 10-inch drivers; internal 300-watt amplifier; 12-100Hz frequency response. Features proprietary Active Bass Controller (ASC), designed to tune the speaker's output to match the

characteristics of any system in any room, and Acoustic Resistive Matrix (ARM) loading cabinet construction to increase control, extension and authority. XLR single-channel 600-ohm balanced and XLR twin-channel 100K unbalanced inputs; 28x25x21"; 180 pounds. Price: \$8,000.



Sumiko Sonus Faber Concertino

Two-way stand or console-mounted monitor, for use as ultrahigh-quality near-field speaker. 5.5-inch PP treated cone mid-woofer; 1/4-inch ferrofluid-cooled silk dome tweeter; 50-20,000Hz frequency response; 86dB sensitivity; 6dB/octave crossover. 25-120-watt power handling; bass reflex front port; combination solid wood and leather sandwich cabinet construction; available in walnut or piano black; 9x13x12 inches; 33 pounds per pair, stands optional. \$995/pair.

3101 Telegraph Ave.
Berkeley, CA 94705
Phone 510/843-4500; Fax 510/843-7120

SEE US AT AES BOOTH # 418



The New FBX-200 Dual Feedback Exterminator: The Latest Innovation in Automatic Feedback Control From Sabine.

The industry standard in automatic feedback control just got better. Introducing the FBX-200 Dual Feedback Exterminator, with 20 FBX filters, 20-bit digital resolution, and yet another engineering

THE PERFECT VISION OF
breakthrough from Sabine: **ClipGuard™** adaptive clip level control, which means the FBX-200 accepts input signals up to 27dBV without clipping, increasing the effective dynamic range to 112 dB.

FEEDBACK CONTROL

The FBX-200 is unmatched at eliminating feedback. Super-narrow, constant "Q" FBX filters are automatically placed directly on the feedback in less than a second (typical), so you get:

- More gain before feedback (6 to 9dB typical)
- Increased clarity and intelligibility
- Fast setup – less than a minute per channel
- Not just a setup tool – eliminates feedback during program

Have you been waiting for the ultimate FBX? This is it. And all this for less money than ever before. Call for a demo of the FBX-200 today.

*FBX and FBX Feedback Exterminator are registered trademarks of Sabine, Inc., and are the brand names of its line of automatic feedback controllers. Covered by U.S. Patent No. 5,245,665, Australian Patent No. 653,736, and Canadian Patent No. 2,066,624-2. Other patents pending.

SABINE®
ADAPTIVE AUDIO

MADE IN USA
www.sabineinc.com
Alachua, FL 32615-8544 USA
Tel: (904) 418-2000
Fax: (904) 418-2001
Fax-Back Product Info:
(904) 418-2002

'On Jupiter'
Pioneer Productions / Discovery Channel USA
Post-production by M2 Television Ltd, London



Truly integrated digital audio and picture, simultaneous output in all major surround sound formats, high impact MotionTracking™ and Spacial Processing™ effects, plus the power to scream through a project while other systems are still sorting out the synchronizing problems

OmniMix

Can you afford to be without it?

Talk to Solid State Logic and you may find out that the OmniMix Digital Surround Sound Production System for film and video costs less than you think.

SEE US AT AES BOOTH # 223

Solid State Logic

International Headquarters: Begbroke, Oxford OX5 1RU, England · Tel: +44 (1865) 842300 Fax: +44 (1865) 842118
Paris +33 (1) 34 60 46 66 · Milan +39 (2) 262 2495x · Tokyo +81 (3) 54 74 11 44 · New York +1 (212) 315 1111
Los Angeles +1 (213) 461 4144 · Toronto +1 (416) 431 9131 · Singapore +65 285 9300
<http://www.solid-state-logic.com>



FACILITY DESIGN
ROBERT A. ROSATI

- ▶ FLOATING FLOOR SYSTEMS
- ▶ HIGH-ISOLATION WALLS, CEILING, DOORS & WINDOWS
- ▶ ARCHITECTURAL SERVICES
- ▶ CUSTOM SURFACE TREATMENTS
- ▶ ADJUSTABLE STUDIO ACOUSTICS
- ▶ ACCURATE CONTROL ROOMS
- ▶ TECHNICAL SYSTEMS: HVAC, POWER, AUDIO AND CABLING
- ▶ MEASUREMENT AND ANALYSIS
- ▶ SITE PLANNING

ROSATI ACOUSTICS
Boston, MA
(800) 423-5505 • (617) 423-5546
<http://www.rosatiacoustics.com>

USE READER SERVICE CARD FOR MORE INFO



Orders . . .
Large & Small, We Have It All!

All models of RECORDING PRODUCTS in stock.
Wholesale distributors of: **SONY**

- Broadcast audio and video tape
- Complete cassette packages
- Prepackaged cassettes
- Bulk cassettes in custom lengths
- Audio/Video duplication
- Computer data media
- Splicing and leader tape
- Assorted reels and boxes

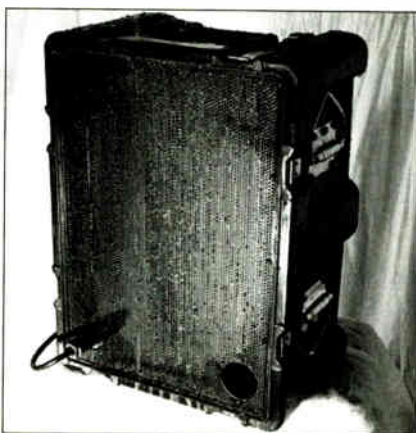
Call for Quote
(800) 854-1061
(619) 277-2540
or Fax orders (619) 277-7610

ADVANCE
Recording Prods.
8859 Balboa Ave. Ste E
San Diego, CA 92123

Tannoy System 800

Coupled with the point source, phase coherent Dual Concentric drive unit is a new, innovative landscape cabinet design which provides a clear line over the console, improves overall tonal balance and results in deeper bass extension. The frequency response is 47-20k Hz \pm 3 dB. The new System 800 is the tool to create well-defined, well-balanced mixes and is ideally suited to near-field applications in recording studios, project studios, broadcast, video post, editing suites, surround applications, etc.

Distributed by TGI North America
300 Gage Ave., #1
Kitchener, Ontario, Canada N2M 2C8
Phone 519/745-1158; Fax 519/745-2364



Technomad Weathertech Loudspeakers

Technomad announces a 25% price decrease on its entire line of loudspeakers. Technomad WeatherTech™ loudspeakers are designed for abusive, real-world situations—year-round, indoors or out—without fear of water, sand, salt, temperature, mold, mildew, condensation, chemical, insect and other damage. Technomad loudspeakers meet military Specification 810E and are ATA III Rated. Technomads can withstand the weather conditions, drops, shocks, and abuse that would destroy all other loudspeakers.

12 Elm St.
Hatfield, MA 01038
Phone 800/446-SPKR (7757); Fax 413/247-3395
E-mail info@technomad.com
Web site <http://www.technomad.com>

TOA SL-Series Speakers

The SL™ Series of compact, rugged speaker and stage monitor systems are for applications requiring quality and economy. All enclosures house a constant directivity horn with piezo driver and a 12-inch or 15-inch woofer. Features: wide frequency response; 240 watts RMS continuous program handling; uniform coverage (90°Hx40°V); steel mesh grille; built-in stand-mounting adapter; interlocking corners for safe, easy stacking; gray textured vinyl covering.

601 Gateway Blvd., Ste. 300
South San Francisco, CA 94080
Phone 415/588-2538; Fax 415/588-3349

Turbosound Impact50

The Impact50 is the latest addition to Turbosound's Impact loudspeaker range. A passive two-way design incorporating a 5-inch LF driver with an HF device, the Impact 50 is used for music playback applications requiring accurate sound quality and elegant styling. A full range of mounting hardware is available.

Distributed by Audio Independence
9288 Gorst Road
Mazomanie, WI 53560
Phone 608/767-3333; Fax 608/767-3360
Web site <http://www.turbosound.com>

Viking Audio MCW-1

Viking Audio's MCW-1 is a highly efficient horn-loaded two-way enclosure consisting of a single 15-inch loudspeaker mounted on an exponential horn with displacement plug and a 2-inch compression driver coupled to a high-frequency acoustic waveguide. Its fiberglass finish provides structural integrity and durability unmatched by conventional painted enclosures. As with all Viking Audio enclosures, the MCW-1 is supplied without drivers.

Viking Audio MCW-19

The MCW-19 is a dual 18-inch horn-loaded subwoofer, trapezoidal in shape to maintain compatibility with all MCW Series arrays. It is supplied without drivers, enabling the users to save money by installing the drivers themselves. The MCW-19 easily withstands the abuse of road tours due to its fiberglass-reinforced catalyzed polyester finish and powder-coated perforated steel grille. It can be used with or without a programmable signal processor.

Juarez 51, El Colli
C.P. 45070 Zapopan, Jalisco, Mexico
Phone 523/628-3950; Fax 523/628-3694



Westlake Audio Lc8.1

The Lc8.1 is designed for near-field monitoring, portable use, broadcasting, and more. The Lc8.1 is hand-built using only performance-matched components and hand-wound coils. Nominal impedance is 7 ohms, sensitivity is 90.5dB SPL, long-term power is 85 watts with short-term at 225 watts, weight is approximately 31 pounds each, and frequency response is 55-18,000 Hz.

2696 Lavery Ct., Unit 18
Newbury Park, CA 91320
Phone 805/499-3686; Fax 805/498-2571
Web site <http://www.westlakeaudio.com>

Woodworx Audio Products Inc. Wave Series

Woodworx Wave Series Systems provide high output with minimal distortion for a variety of applications. When quality sound and unobtrusive aesthetics are required, the Wave Series delivers excellent power handling with smooth power response in a compact package. Five models are available in portable and installation versions. Wave Series offers three arrays, one monitor and one subwoofer to satisfy the most extensive system requirements.

402 Edwardia Dr.
Greensboro, NC 27409
Phone 910/855-5600; Fax 910/855-1488



Amek System 9098 Twin Mic Amp

The System 9098 Twin Microphone amplifier is a 1U rack-mounted device that contains two separate channels, each with microphone amplifier and direct inject input. Maxi-

—LISTING CONTINUED ON NEXT PAGE

You can't buy a better 2 channel FFT analyzer - at any price.

SR780..\$9950 (U.S. list)

Unlike many analyzers, frequency response measurements to 100 kHz are no problem for the SR780.

The SR780 performs 1000 averages in a few seconds - other analyzers can take minutes.

The SR780 two channel FFT Network Analyzer offers more standard features, is easier to use, has better specs and costs half as much as the competition. It delivers 102 kHz dual channel operation, swept-sine measurements with 145 dB dynamic range, real-time ANSI standard octave analysis, waterfall plots, time capture, user math, context sensitive help, and that's just the beginning. Simply put, the SR780 is the highest performance two channel FFT analyzer you can buy. We're so confident that the SR780 will improve your measurements we challenge you to do a comparison yourself. Just call us and we'll send you a unit for a two week evaluation and you'll see why engineers with applications including modal testing, vibration analysis, control system design, filter design, audio analysis, and noise measurements have switched to the SR780.



Using the SR780 swept-sine source, the measured zero in this anti-aliasing filter graph is resolved to a depth of -144 dB from the pass band.



The SR780 allows independent configuration of both channels. Choose different spans, start frequencies and functions. It's like having two separate analyzers in one instrument.

	SR780	HP35670A
Frequency range (2 ch)	DC to 102.4 kHz	DC to 51.2 kHz
Realtime bandwidth (2 ch)	102.4 kHz	12.8 kHz
Dynamic range	90 dB	90 dB
Input noise	-160 dBVrms/√Hz	-140 dBVrms/√Hz
Source distortion	<-80 dBc (<30 kHz)	<-60 dBc (<30 kHz)
Swept-sine measurement	standard	\$1020 (option)
ANSI std. octave analysis	standard	\$2040 (option)
Arbitrary waveform source	standard	\$510 (option)
Standard memory	8 MBytes	1.2 MBytes
Price w/ options	\$9,950	\$20,820



Stanford Research Systems

Telephone: (408)744-9040 FAX: (408)744-9049

Email: info@srsys.com WWW: <http://www.srsys.com/srsys/>

©1996 Stanford Research Systems. HP prices and specifications per 1996 catalog and data sheets.

USE READER SERVICE CARD FOR MORE INFO

Ultimate Ears

Custom fit, high definition, studio monitor quality, for in ear monitoring.

The new two-way
UE5-PRO

Call

1-800-589-6531
1-702-263-7805

68 Magical Mystery, Las Vegas, NV 89014



USE READER SERVICE CARD FOR MORE INFO

• AES NEW PRODUCTS GUIDE 1998

—LISTING CONTINUED FROM PREVIOUS PAGE

imum gain range is 72 dB with switched and fine gain controls. Highpass filter, mute switch, 7-segment LED meters, phase switch and phantom power are standard. Stereo operation is possible, and A-B and M/S (main and side) decoding circuits with width control are included. U.S. list price will be approximately \$1,600.
10815 Burbank Blvd.
North Hollywood, CA 91601
Phone 818/508-9788; Fax 818/508-8619
E-mail amek@console-city.com

ATI (Audio Toys Inc.) 8MX16

The 8MX16 is a follow-up to the 8MX2. The 8MX16 contains eight of ATI's high-voltage ($\pm 48V$) mic preamps, each with a main and an aux out, an 8x2 mixer and a host of operational features. Housed in a 1U chassis, the 8MX16 is equally appropriate in the studio or on the road. List: \$1,699.
9017-C Mendenhall Ct.
Columbia, MD 21045
Phone 410/381-7879; Fax 410/381-5025
Web site <http://www.audiotoys.com>



Audio Upgrades High Speed Preamp

The acclaimed Audio Upgrades High Speed Mic Preamp has been improved by incorporating MIT and Infinicap capacitors. Housed in a single rackspace chassis, the unique current feedback amplifier design offers performance beyond traditional designs by reducing phase shift to below 1° and by maintaining a greater than 8 MHz bandwidth.

Audio Upgrades Mic Preamp Card

The Audio Upgrades Mic Preamp card offers high-end outboard mic preamp performance in a miniature 1x2-inch package. With a discrete Class-A front end and very high-speed video amps, the card outperforms outboard mic preamps. Specs: THD: .0005%; IMD: .0002%; Noise: -129.5dB EIN; Phase shift: 0° at 50 kHz; Output current: >100 ma; Slew rate: 3,000 volts per microsecond.
6410 Matilija Ave.
Van Nuys, CA 91401
Phone 818/780-1222; Fax 818/346-2308
E-mail AV119@LAFN.org
Web site <http://home.earthlink.net/~lmarx/>

Crookwood Rackpot

The Rackpot is a 4-channel remote-controlled mic pre based on our successful Paintpot design. It is packaged in a 1U box, and all features, including gain in 1dB steps, can be remotely controlled by one Control Pot remote. It's sonically very accurate but has many features to get the best sound out of any mic. This modular design can be specified with transformers, distribution outputs, hi Z inputs and even a 20-bit AES output. From about \$3,000.

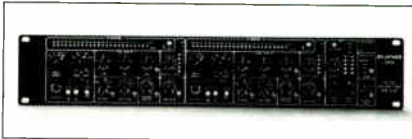
Crookwood Mic Brick

The Mic Brick is a 3U modular remote-controlled mic amp system designed for larger installations. It can be fitted with up to 32 ch. of Crookwood 2-channel pre cards (as used in the Rackpot), all of which can be completely controlled by one 2U Control Pot remote. It's wired to order and has many options including instrument inputs, transformer I/O, distribution outputs, backup PSUs, submixes custom connectors and 20-bit AES outputs. From about \$4,000.
The Old Police House

Station Hill
Cookham, Berkshire, SL6 9BS UK
Phone 44/1628/528-026; Fax 44/1628/531-959

Demeter H Series

Tube design delivering the sound of the Demeter mic preamp for a project-studio budget. Features Jensen input transformers, active balanced output, precision-tested 12AX7A tubes operated at 250 volts, 20-60dB variable gain, 48-volt phantom power, low cut, pad and phase controls and VU level indicators all in a sturdy single-rack package.
2912 Colorado Ave., #204
Santa Monica, CA 90404
Phone 310/829-4383; Fax 310/829-3755
Web site <http://www.loop.com/~mits/demeter.htm>



Drawmer 1962 Digital Tube Preamp

The 1962 digital vacuum tube preamp combines two perfectly matched mic/line preamps and two full 24-bit analog-to-digital converters, providing an ultrahigh-quality front end for digital recording. The inclusion of a "zero overshoot" transparent limiter enables the full dynamic range of the signal to be used without fear of digital overload. Further features include variable tube drive, dynamic enhancement, variable high/lowpass filters and fine-tune EQ. Distributed by OMI
25 South Street
Hopkinton, MA 01748
Phone 508/429-6881; Fax 508/435-4243
Web site <http://www.proaudio.co.uk/drawmer.htm>



Dunmore Vintage Audio DR 2MP

The DR 2MP is an extremely sensitive, 4-vacuum tube microphone preamplifier. Its features include a master volume control for variable tube saturation (delivering an output gain of up to 84 dB), XLR balanced inputs, line inputs, switchable phase, switchable pad, switchable +4 -10 outputs, 48V phantom. Optional full-range EQ network available.
5126 Vineland Ave.
North Hollywood, CA 91601
Phone 818/508-2540; Fax 818/508-2549
E-mail sincl@primenet.com
Web site <http://www.primenet.com/dunmorevintageaudio/>

Focusrite Dual Mic-Pre

A dual-channel Mic-Pre, with the input stage based around an exceptionally quiet, low-distortion circuit with very wide frequency response. Gain is variable from +10 to +60 dB, and equivalent input noise (EIN) is an impressive -128 dBu. Phase reverse, +48V phantom power and highpass filter, with 12dB/octave roll-off at 75 Hz provided on both channels. Each channel has a relay-switched mute operated manually from the panel or under external control. Clip light at +20 dB (6 dB below clipping). List: \$1,099.

WE HATE NOISE

The Radial JDI direct box... a real-world solution to noise with a straight forward design.

The JDI is laced with all the right features: flat to 80kHz, virtually zero phase deviation, de-couples source & destination eliminating common mode noise and incorporates a 60kHz filter to protect against residuals from computers & keyboards that cause overheating of amps and drivers. Since the JDI is completely passive, no worries about 48 volts of phantom ending up in your mains, no half-juice batteries to degrade the sound, just the warmth and detail available only from a Jensen.

Built for touring, ready for broadcast, made for studios, the JDI delivers. It even has a full non-slip pad so that it won't scratch your SSL! Contact the professionals at Cabletek for more information.

SEE US AT AES BOOTH #964



Cabletek Electronics Ltd.
Tel: (604) 942-1001 - Fax: (604) 942-1010

Radial and Jensen are registered trademarks of Cabletek Electronics & Jensen Transformers, respectively.

ACOUSTICTOOLS®

High-Performance, Affordable, Complete Room Solutions From
The Music Industry's Leading Acoustical Innovator

for **PROJECT STUDIOS**



The music you hear in your Project Studio is distorted by interfering reflections and the room's low frequency modal response. Even the most sophisticated electronic equipment cannot overcome these acoustic problems. AcousticTools® is the first affordable, integrated system which lets you realize the full potential of your hardware investment. Listen to the music, not the room!

Abflector™



B.A.S.S. Trap



Skyline®



Innovative Acoustics for the Digital Age

RPG Diffusor Systems, Inc.
651-C Commerce Drive, Upper Marlboro, MD 20774
Phone: (301) 249-0044 Fax: (301) 249-3912 E-mail: info@rpginc.com

USE READER SERVICE CARD FOR MORE INFO

World Radio History

MacBEAT[®] DIGIDESIGN OPCODE TASCAM

In the Digital Recording market there are some things you want to get right.

**IT MUST SOUND GREAT,
BE DURABLE,
FUNCTIONAL,
USER FRIENDLY,
EXPANDABLE &
AFFORDABLE.**

That's why you need a Digital Audio dealer who knows how to ensure that the products you buy are exactly what you need to get the job done - a dealer who gets it right the first time. Sounds like you're talking about MacBEAT. We're not some huge sales organization, just the best, dedicated sales people and technicians in the business who are musicians themselves. Call us now, and you too can experience what it's like dealing with Pros in the know.

**Coda
Mark of the Unicorn
E-mu
EMagic
Steinberg Jones
Kurzweil
Panasonic
Ramsa
Roland
AKG
Lexicon
Fostex
Kawai
Waves
MUCH MORE!**

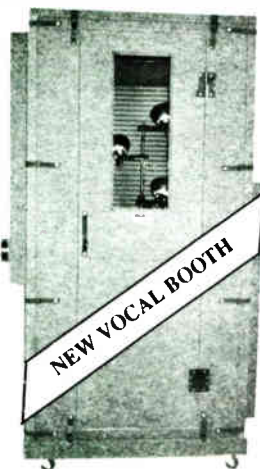


1314 Rufina Circle, Ste. #A4 • Santa Fe, NM, 87501

1-800-MAC-BEAT
INFO: 505-473-3434 FAX: 505-473-4647
www.macbeat.com

USE READER SERVICE CARD FOR MORE INFO

WhisperRoom^{INC.} Sound Isolation Enclosures



NEW VOCAL BOOTH

Sound Isolation Rooms
Vocal Booths
Amplifier Isolation Enclosures
Practice Rooms

Tel: 423-585-5827 Fax: 423-585-5831

116 S. Sugar Hollow Rd.
Morristown, TN 37813 USA

• AES NEW PRODUCTS GUIDE 1998



Focusrite Voice Box

A single-channel processor incorporating a mic pre, equalizer and dynamics. The equalizer section consists of adjustable high- and low-shelving filters and a fully parametric mid band. The dynamics section includes compression, de-essing, and a noise-reducing expander. Sections can be switched in/out independently, and there is an LED bar graph for level metering. List: \$1,349.

Distributed by Group One Audio

80 Sea Lane

Farmingdale, NY 11735

Phone 516/249-1399; Fax 516/753-1020

E-mail G1DESERT@AOL.COM

Giltronics Model 356 AT

The Model 356 AT (\$2,850) is an all-vacuum tube unit combining two discrete mic preamps and two line amplifiers in a single 2U chassis. All inputs and outputs are transformer-balanced for wide dynamic range, low distortion, low noise and a 20-20k Hz (± 0.2 dB) frequency response. Effects can be patched between mic and line amps for direct-to-tape tracking. Hear it on Taj Mahal's latest "Phantom Blues." Also available: four mic pre and four line amp versions.

Phone/Fax 800/682-2778

E-mail gilamp@hawaiian.net



Grace Design Model 201

Grace Design's Model 201 microphone preamplifier is based on the critically acclaimed circuitry of its flagship Model 801. The Model 201 brings world-class performance to a broader market without sacrificing any quality or workmanship. The Model 201's transformerless design delivers a new level of subtlety and detail to the recorder without any coloration. It comes in a beautifully constructed single-rackspace chassis and is priced under \$2,000.

Box 204

Boulder, CO 80306-0204

Phone 303/443-7454; Fax 303/444-4634

E-mail MBGRACE@aol.com

Joe Meek Tube Channel VC2

The Joe Meek Tube Channel VC2 is a development of historic tried and tested circuits from the 1960s to the present day in a single (and bright green!) 2-rackspace unit. The Tube Channel combines a mic preamplifier, photoresistive (non-VCA) compressor, HF enhancer, VU metering and tube make-up stage. Ideal for tracking instruments or vocals directly to tape, or use the line input to access the compressor or enhancer during mixdown.

Distributed by Peninsula Marketing

23773 Madison Street

Torrance, CA 90505

Phone 310/373-9129; Fax 310/373-4714

Manley Mic/EQ 500

This fully differential microphone preamp and equalizer combo, the Mic/EQ 500, is a new all-tube design from David Manley. The passive EQ section is a refreshing revival of one of the most musical EQs of the past. Excellent for direct-to-tape tracking, switchable modes also allow

for stand-alone mic pre or EQ operation. The ± 10 dB boost/cut EQ can be shelving or parametric. 2-Band: LF: 100Hz, 40Hz. HF: 3k, 5k, 7k, 10k, 15k.

13880 Magnolia Ave.

Chino, CA 91710

Phone 909/627-4256; Fax 909/628-2482

E-mail emanley@netcom.com

Web site <http://www.manleylabs.com>

Martech Modular Mic Preamp

Operates as a stand alone or with 4 units in a rack-mount, using our new transformer design, all discrete, dual-signal-path preamp with a distinctive vintage look to it. Retail: \$2,250.

1151 W. Valley Blvd.

Alhambra, CA 91803

Phone 800/582-3555; Fax 818/284-3092

E-mail info@martinsound.com

Web site <http://www.martinsound.com>



Millennia Media Inc. HV-3C

Millennia's industry-standard HV-3C stereo mic preamp with integrated Apogee AD-1000 20-bit A/D converter. Offers a wide range of input and output options, including preamp-converter insert points and front panel linking. Retail: \$4,290.

4200 Day Spring Ct.

Pleasant Valley, CA 95667

Phone 916/647-0750; Fax 916/647-9921

E-mail jll@ns.net



Night Technologies PreQ3

The PreQ3 is the only full-featured microphone preamp with NTI's VARiable AirBand™ equalizer, usable also on line inputs. The adjustable, high-frequency shelf equalizer can move above the microphone hiss and bring out the high end before distortion is introduced by any active circuits. The PreQ3, with switching power supply, balanced transformer-coupled inputs and actively balanced outputs, provides four channels in a single rackspace, also available as a 2-channel upgradeable unit. Two-channel: \$1,595; 4-channel: \$2,595.

1680 W. 820 N.

Provo, UT 84604

Phone 801/375-9288; Fax 801/375-9286

E-mail raventos@tsnet.com

Precision Analog Systems MPA 100

Dual-channel mic preamp: pure class-A operation. 100% discrete circuitry. Handcrafted quality controls for gain, 48V, pad, phase, mute, 60dB gain, 10-segment metering and peak LED on both channels. Single-rackspace chassis. List: \$2,195.

MSC 191 22323-6 Sherman Way

West Hills, CA 91303

Phone 818/888-0388; Fax 818/704-7614

E-mail pas3@mail.idt.net

Web site <http://shell.idt.net/~pas3>

TEST DRIVE A CARVER

PX



The new PX Series
from Carver Professional:
POWER, PERFORMANCE, VALUE!

Test Drive a PX at a Dealer Near You!



Made in America.
Played All Over The World!

180 DAY
Performance
Guarantee

CARVER

PROFESSIONAL

5 Year
Warranty

A division of Phoenix Gold International
9300 North Decatur • Portland, OR 97203 • Tel: 503.978.3344 • Fax: 503.978.3392
In Canada: Contact Distribution • 38 Thornmount Dr. #11 • Scarborough, Ontario M1B 5P2 • Tel: 416.287.1144
USE READER SERVICE CARD FOR MORE INFO

P.A.S.T. Mic Amplifier

Following the success of the P.A.S.T. Equalizer, the P.A.S.T. Microphone Amplifier is designed and built to individual custom order by ex-Neve engineer Steve Butterworth. The microphone amplifier is based on the same vintage console design philosophy as the EQ. The unit combines the best of 1970s discrete audio design and construction quality with a blend of vintage and modern high specification components for extremely high performance while retaining the classic warm sound.

Woolsack Barn, 24 Market St.
Ely, Cambridgeshire CB7 4LS, England
Phone 44/1353-669903; Fax 44/1353-669903

Summit Audio MPC-100

A single-channel unit composed of a tube preamplifier, with microphone, Hi-Z, and line inputs followed by a new compressor/limiter design providing extremely fast attack times to optimize the signal prior to the digital domain. "Clean to effect" valve sounds, 2-position pad, clip indicator, Hi-Z instrument D.I. with loading control; stepped attenuator; variable threshold/release controls; attack and release pre-set switches; VU meter for input, output and gain reduction metering; front-panel facilities for stereo link and bypass; output gain control; +4dB and -10dB outputs.

PO Box 1678
Los Gatos, CA 95031
Phone 408/464-2448; Fax 408/464-7659

Sytek Audio EQ4X-1A

EQ4X-1A is a 4-band parametric equalizer and 1-channel mic preamplifier. The equalizer is a true state variable Bessel Polynomial and can provide peak, dip and shelving mode for highpass and lowpass. The mid-band low and mid-band high have continuous bandwidth selection

from 0.1 to 2.5 octaves. The mic pre section contains controls for mute, phase, +48V and mic/selection. Bands: LF, 20-400 Hz; LMF, 50-1,500 Hz; HMF, 400-8,200 Hz; HF, 1k-20k Hz. Retail \$1,460.

Sytek Audio MPX-4A2

MPX-4A2 is the second-generation upgrade of the MPX-4A quad microphone preamp with new features. Transformerless design, Class-A, auto-bias bridge configuration, hybrid input stage with extremely low-distortion properties and gain of 70dB, THD is below 0.0015%, S/N ratio -96 dB and EIN of -129 dB. MPX-4A2 features a peak indicator, mute, phase invert and 48V phantom-power switch for each channel, XLR balanced I/O and low-EMI toroidal power supply. Retail: \$1,280.

2424 W. Irving Park Rd.
Chicago, IL 60618
Phone 800/692-3037; Fax 773/588-1682

TL Audio VP2051

The VP2051 Mono Valve Voice Processor combines a tube mic preamp, 4-band tube equalizer and tube compressor in a single rackspace, mono processor with mic, line and aux inputs. The front panel "Link" facility assigns all settings to a second unit attached via 1/4-inch connector. The mic pre has individual control of input gain, 48V phantom power, phase reverse and 90Hz low-cut filter. Master section includes 8-segment metering for output level and compressor gain reduction.

Distributed by Sascom Marketing
34 Nelson St.
Oakville, Ontario, Canada L6L 3H6
Phone 905/469-8080; Fax 905/469-1129
E-mail sales@sascom.com

Whirlwind MD-1

The Whirlwind MD-1 is a battery-powered mic preamp/line driver with a separate built-in headphone amplifier. This compact package features a belt clip and quick-change battery access to two standard 9V batteries. Preamp gain and headphone volume are adjustable, 18V phantom and mic/line gain are switch selected. List: \$295.

99 Ling Rd.
Rochester, NY 94549
Phone 800/733-4396 or 716/663-8820; Fax 716/865-8930



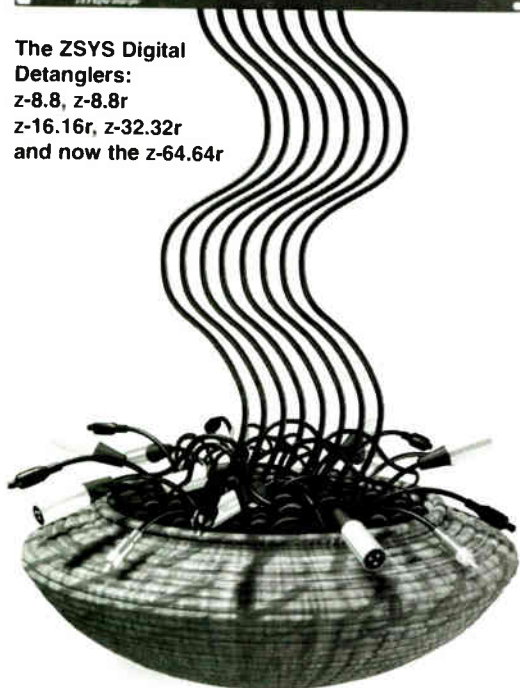
AKG Emotion Series

The Emotion Series is a line of cost-effective microphones manufactured using a new patent-pending process called Tiefzieh "Varimotion" Technology™. The Tiefzieh process

—LISTING CONTINUED ON NEXT PAGE



The ZSYS Digital Detanglers:
z-8.8, z-8.8r
z-16.16r, z-32.32r
and now the z-64.64r



SEE US AT AES BOOTH # 1461

If digital was supposed to make things easier, why do you have a snakepit behind your rack of digital gear?

Tired of battling the constant tangle of cables every time you need to configure and reconfigure your set-up? Wondering how you're going to make *this* AES/EBU device talk to *that* S/PDIF device? Let a **ZSYS Digital Detangler** take care of your digital audio interface problems so you can get on with more important things. Whether you need 8, 16, 32 or even 64 ins and outs.... manual, remote, or software control.....even format conversion and custom configurations one of our Detanglers is perfect for you.

ZSYS—The last name in audio engineering.

Z-Systems Audio Engineering
4641-F NW 6th Street
Gainesville, Florida USA 32609
Tel: 352-371-0990 Fax: 352-371-0093
z-sys@z-sys.com http://www.z-sys.com



USE READER SERVICE CARD FOR MORE INFO

Introducing the M88 Classic

LIMITED EDITION

Now you can be one of the privileged few to own the M88 in its limited edition form. This collection has been limited to 999 pieces world-wide. Its design, weight and materials have been reproduced exactly to match the original model which was introduced in 1963.

Today, the M88's design is considered a classic. Its technology which in 1963 was proclaimed as innovative and progressive has remained unrivaled for pure sound quality and accuracy.

The M88's stunning performance makes it a favourite among artists the world over and has led it to being used by such world class artists as: Eric Clapton, Phil Collins, Tony Bennett, Elton John and Carly Simon.

This is a once in a life time opportunity to own a piece of music history.

*An M500 Classic Limited Edition microphone is also available.



Handsome mahogany box lined in black velvet, inlaid with a silver plaque. Solid clasp to safeguard your historic investment.



Chromium plated stainless steel basket with a brass barrel specially coated in combination of nickel and chrome called velour. Unique engraved serial numbering with M88 Classic Limited edition logo.



Certificates of authenticity printed on parchment paper to guarantee the collection number of the microphone. Signed and validated by Fred R. Beyer, Managing Director of Beyerdynamic GmbH & Co.

The M88 Classic Limited Edition is a dynamic moving coil microphone with performance that clearly define its classic status. It offers unrivaled off-axis rejection for live sound performance, extended low and high end frequency response for the ultimate in accuracy and high SPL capability to handle any performance. Its frequency response of 30-20,000 Hz is perfectly flat and uncoloured. The M88 Classic Limited Edition is not only the ultimate musician's microphone it is also a collector's item. Call beyerdynamic today to locate a participating dealer near you to become one of the privileged few to own a classic piece of history!

For more information and a colour leaflet on the M88 Classic or M500 Classic call 1.800.293.4463

56 Central Ave., Farmingdale NY 11735 Tel:(516)293.3200 Fax:(516)293.3288

USE READER SERVICE CARD FOR MORE INFO

beyerdynamic

—LISTING CONTINUED FROM PREVIOUS PAGE

forms and adjusts the diaphragm during a single manufacturing process, resulting in a microphone element that does not depend on mechanical adjustments of the capsule to achieve the desired performance. The benefit is a premium product for the price of a conventional low-cost microphone. List price: \$108-\$131.



AKG WMS-300 UHF Wireless

The WMS-300 provides 16 user-selectable frequencies. Eight units can be operated simultaneously. Ten different combinations of handheld and bodypack units are available. The half-rack receiver features true diversity, 16 user-selectable frequencies, signal strength, transmitter battery strength, squelch, mute indicator, channel selector and output signal level control. Transmitters feature 16 user-selectable frequencies, sensitivity adjustment, power and mute switches and interchangeable mic capsules on the handheld units. Price: \$1,480-1,599.

Airpark Business Center XII
1449 Donelson Pike
Nashville, TN 37217
Phone 615/399-2199 or 800/878-7571; Fax 615/367-9046

Audio-Technica AT854R

The AT854R is a multichannel boundary microphone with four cardioid condenser elements in a single housing. The shielded cable has a small, multipin connector at the microphone end and four XLR-type connectors for plugging into the mixer, allowing individual control of each channel. The AT854R is ideal for video and desktop conferencing applications, especially with the Audio-Technica AT-MX341a SmartMixer™, a 4-channel, microprocessor-controlled, automatic microphone mixer.

1221 Commerce Dr.
Stow, OH 44224
Phone 330/686-2600; Fax 330/686-0719
E-mail pro@atus.com



Beyerdynamic MC 833

The MC 833 is a stereo condenser microphone equipped with three large diaphragm elements. It allows the user to vary the position of the capsules making it ideal for M-S or XY recordings without the need of a matrix amplifier. It is ideally suited for orchestral/recital recordings, ambience and sampling.



Beyerdynamic MCD 100 Digital Microphone

The MCD digital condenser studio microphone features preamplification and A/D conversion of the microphone signal. This previously was effected at the input of a digital mixing console but now is accomplished directly behind the microphone capsule. This provides an AES/EBU signal at the output of the microphone.

56 Central Ave.
Farmingdale, NY 11735
Phone 516/293-3200; Fax 516/293-3288
E-mail beyerusa@aol.com

B.P.M. Studio Technik USA CR-7311

The CR-7311 is a large-diaphragm German microphone. Handling sound pressure levels of up to 124 dB, this dual-pattern microphone with bass cut and pad feels comfortable in any application. Linear response, classic, deep and rich sounding this microphone does it all. Comes complete in a custom aluminum flight case with shockmount, pop filter and cable. Suggested retail: \$999.95.

B.P.M. Studio Technik USA TB-95

The B.P.M. Studio Technik TB-95 is a German-manufactured tube microphone. This large-diaphragm microphone features a newly designed valve with high performance and a balance of high output and low noise. Frequency response of 20-20k Hz, three position, bass cut and pad. Comes complete in a custom aluminum flight case with shockmount, power supply and cable. Suggested retail: \$1,849.99.

6945 Southwest 111 Place
Miami, FL 33173
Phone 305/588-7008; Fax 305/266-6803
E-mail BPMSTUSA@aol.com

Bruel & Kjaer HMA 4000

The HMA 4000 has both electronically balanced and single-ended line-level outputs. Input signal in either channel can be independently amplified or attenuated by +20 dB, 0 dB or -12 dB with channel separation of up to 90 dB. The HMA 4000 uses state-of-the-art operational amplifiers and achieves very low self noise and a dynamic range of up to 140 dB with an impressive frequency range of 10 Hz-200 kHz (±0.5 dB).

Distributed by TGI North America
300 Gage Ave., #1
Kitchener, Ontario, Canada N2M 2C8
Phone 519/745-1158; Fax 519/745-2364



Dunmore Vintage Audio DR 747/DR 747-E

The DR 747 is DVA's top-of-the-line vacuum tube studio condenser microphone, with performance characteristics very similar to those of classic U47s. All mics have large gold-sputtered double diaphragm capsules and five switchable pickup patterns. Options include an adjustable microphone EQ setting for optimal recording of a variety of voices/instruments, and "Vocal Personalizing," DVA's

modification service that lets users tailor microphones to an individual voice.

5126 Vineland Ave.
North Hollywood, CA 91601
Phone 818/508-2540; Fax 818/508-2549
E-mail sincl@primenet.com
Web site http://www.primenet.com/dunmorevintageaudio/

Earthworks Inc. TC40K

Perhaps the most accurate microphone available, the TC40K is a very small-diaphragm, omnidirectional mic. It is accurate from 9 Hz to beyond 40 kHz. It delivers incredible realism, stunning detail, virtually perfect impulse response. The TC40K gives a true and accurate representation of the sound and experience of being there live. List: \$900.

Box 517
Wilton, NH 03086
Phone 603/653-6427; Fax 603/654-6107
E-mail earthwks@jic.net

Lawson Inc. L-47 Gold

The L-47 is a large-diaphragm cardioid tube microphone that features a 3-micron gold-sputtered diaphragm. Each capsule is shock-mounted and is precision-machined from solid brass and then hand-lapped to ensure consistent performance from mic to mic. It uses the time-honored 6072 vacuum tube coupled through a MIT multicap capacitor to provide a pleasing sound with an open top end and a slight presence peak. U.S. list: \$1,795.

2741 Larmon Dr.
Nashville, TN 37204
Phone 615/269-0828; Fax 615/269-0828
E-mail 75407.1104@compuserve.com

Lectrosonics UM200 UHF Transmitter

The UM200 transmitter is an advanced, high-performance design intended for the most critical applications. 256 frequencies are selectable in 100kHz steps for mobile or traveling applications to alleviate carrier interference problems. It includes a dual-band compandor for low noise and distortion and a pilot-tone signal for audio squelch control. The side panel has two rotary switches for setting operation frequency and a recessed control to adjust low frequency rolloff. List: \$1,595.



Lectrosonics UDR200B

The UDR200B receiver is an advanced, high-performance, frequency selectable UHF receiver designed for the most demanding applications. 256 frequencies are available in 100kHz steps. A unique tracking front-end retunes as the frequency is changed over the 25.6MKz range, preserving the benefits of a highly selective fixed frequency design while providing the frequency agility necessary to deal with interference problems in traveling venues. List: \$4,395.

581 Laser Rd. N.E.
Rio Rancho, NM 87124
Phone 505/892-4501; Fax 505/892-6243
Web site http://www.lectro.com/lectro/

dB Technologies
Introduces the

MASTER THE FUTURE

AD122-96



24-BIT
stereophonic analog-to-digital converter

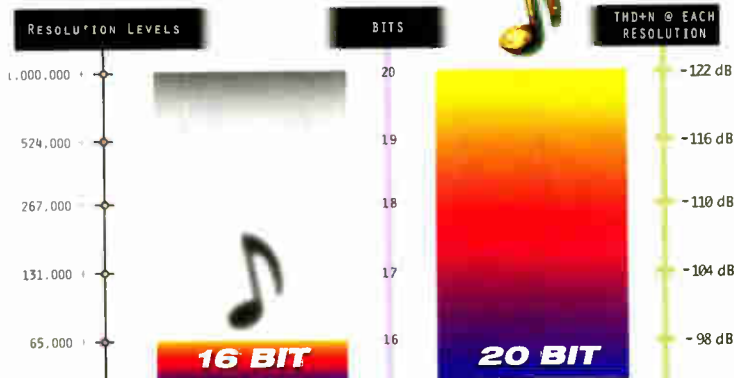
New 20-bit storage provides 16 times the resolution of older 16-bit media. That requires precise conversion for the most critical stage of digital recording.

Following industrywide acclaim, our new AD122-96 meets and beats the new 96kHz and 88.2kHz standards with a true 24-bit digital audio stream and 122 dB noise floor.

The future is here: actual resolution with relentless attention to purity, infinitesimal quantization steps and rock-bottom noise figures.

With the AD122-96 you deliver the best possible sound for your clients – and those great masters will always be ready for future formats.

How each sample of audio is captured by an A to D converter. See how your converter compares.



Also from dB Technologies...

MODEL 3000S
DIGITAL OPTIMIZER



- The best sample rate conversion, dither and noise shaping available
- Up to 96 kHz I/O • Superb Metering • Format Conversion
- THD and N measurements • Digital Tones • Multimedia Option

From the think tank at

dB
Technologies

Distributed worldwide by:

AUDIO INTERVISUAL DESIGN
1155 N. La Brea, W. Hollywood, CA 90038
(213) 845-1155 FAX (213) 845-1170



Microtech Gefell UMT 800

This is a large-format condenser microphone for use in sound studios, motion picture soundstages and broadcast studios. It features the renowned M7 capsule (used in the Neumann U47) in a 5-pattern configuration including omni, wide-cardioid, cardioid, hypercardioid and figure-8. The amplifier is phantom-powered with a balanced, transformerless output. Pro net price: about \$1,500.

Distributed by G Prime Ltd.

1790 Broadway, Ste. #402
New York City, NY 10C19
Phone 212/765-3415; Fax 212/581-8938
E-mail info@gprime.com
Web site <http://www.gprime.com/mtg>

Nady Systems Inc. 950GS

Nady's 950GS wireless systems feature patented companding noise reduction, 120dB dynamic range, 160 channels in groups from 475 to 952 MHz and SMT modular design. Selectivity allows up to 40 systems in one location. Third-order intercept provides more headroom, less interference and lower distortion. Nady features a wide range of UHF transmitters with HT-60 handheld, LT-60 lavalier, GT-60 instrument, ENG-12 and headset microphone options. Systems available under \$3,000.

6701 Bay Street
Emeryville, CA 94608
Phone 510/652-2411; Fax 510/652-5075
Web site <http://www.nadywireless.com>

Neumann/USA TLM 193 Special

Introduced as a limited-issue microphone, the TLM 193 Special is a satin-nickel version of the venerable TLM 193. With only 50 units imported into the U.S., this microphone will be an instant collector's item. This special version uses the same dual-diaphragm capsule as the standard TLM 193, TLM 170R and U89i microphones. Like the standard 193, the Special is hard-wired for cardioid operation and features a transformerless output.

6 Vista Dr.
PO Box 987
Old Lyme, CT 06371
Phone 860/434-5220; Fax 860/434-3148
E-mail neumtech@neumannusa.com
Web site <http://www.neumannusa.com>

Pearl DS-60

New from Pearl Microphone Labs of Sweden (PML), the DS-60 provides two rectangular dual-membrane capsules, mounted one above the other, and each capsule is rotated 90° with respect to the other. Four discrete outputs from the microphone are available via a 9-pin connector. The microphone is an excellent choice for Blumlein and virtually any other stereo microphone technique. An optional matrix amplifier is available, which provides remote pattern selection, gain control and highpass filters.

Pearl TL-44

The TL-44 provides dual rectangular membranes mounted back-to-back allowing its use as a 180° coincident stereo microphone. Since each membrane's output is brought out discretely via a 5-pin XLR connector, it may also function as a mono microphone providing virtually any polar pattern by bringing the individual outputs of the microphone into a mixing console and using the console to configure the pattern inversion. U.S. list price: \$2,050.

Importer: Tom Der/Zero THD
1710 W. Fullerton Ave., 2nd Fl.
Chicago, IL 60614
Phone 312/665-9066; Fax 312/665-9067
E-mail 75407.1104@compuserve.com

SCIP 414 Valve Job

SCIP Electronic Systems is pleased to introduce the Valve Job, a tube head-amp modification for the popular AKG 414 series of condenser microphones. SCIP installs this high-performance upgrade, which provides new 8319-based head electronics, multicore cable, UL-listed power source, improved feature switching and extraordinary tube sound. The modification is priced at \$789, making your upgraded 414 the most cost-effective high-performance tube condenser microphone on the market.

16169 Sunset Blvd.
Pacific Palisades, CA 90272
Phone 310/454-1889; Fax 310/454-8796

Schoeps M222 Tube Mic System

A legend reborn, Schoep's 30-year-old M221B re-emerges in new garb with updated electronics. Similar in appearance to the familiar CMC-Colette microphone, it accents any of the current Schoeps capsules and active accessories. Its support package powers the microphone and has an optional line-level output via a solid-state amplifier. The complete system, including cable and stand clamp, comes in a transport case. The Schoeps M222 Tube Microphone System is \$1,765.

Schoeps MK 2 H Omni Capsule

This is the fourth omnidirectional capsule to join the Schoeps Colette Series. It is particularly useful for distant miking orchestral music. Its special characteristics include a slight high-frequency rise (2 dB at 12 kHz) and a more uniform off-axis polar response than other pressure capsules of similar size. The gold ring enclosing the sound inlet gives the capsule its distinctive appearance. The new Schoeps MK 2 H Omnidirectional Capsule is \$700.

Distributed by Posthorn Recordings
142 W. 26th St., Ste. 10-A
New York City, NY 10001-6814
Phone 212/242-3737; Fax 212/924-1243



Sennheiser MD421 II

The MD421 II is a dynamic cardioid microphone with 5-position bass roll-off. The successor to the classic MD421-U, the MD421 II offers improved transparency for a more natural sound, easier positioning, greater durability, easier servicing, and is more immune to dust and humidity. Frequency response: 30-17,000 Hz. Retail: \$485.



Sennheiser SET1081-U

The SET1081-U is a 16-channel UHF switchable handheld system with a dynamic supercardioid microphone and true diversity receiver. The 16 switchable UHF channels are available in 3 frequency groups for up to 24 channels of operation. The handheld transmitter provides an output power of 50 mW and a frequency response of 80-18,000 Hz. The diversity receiver weighs only 25 oz. and has a frequency response of 40-20,000 Hz. Retail: \$1,995. A similar bodypack system is available.

6 Vista Drive
Old Lyme, CT 06371
Phone 860/434-9190; Fax 860/434-1759
E-mail miclit@sennheiserusa.com
Web site <http://sennheiserusa.com>



Shure UHF Wireless Mic System

Available in single- and dual-channel configurations, the system's single rackspace diversity receivers use tone-key squelch and Shure's proprietary MARCAD (Maximum Ratio Combining Audio Diversity) circuitry. Handheld transmitters are offered with Shure microphone elements, including the premium Beta 58A and Beta 87 models. Bodypacks feature Tini QC connectors and are compatible with Shure lavalier and headset mics. Prices begin at \$2,390 for a single-channel receiver w/SM58 handheld transmitter. Dual-channel receiver with two SM58 handhelds is \$3,980. FCC and IC approved.

222 Hartrey Ave.
Evanston, IL 60202-3696
Phone 847/866-2200; Fax 847/866-2279
Web site <http://www.shure.com>



Soundfield SPS422

The SPS422 Studio Microphone System is based on the same design principles as more expensive Soundfield systems.

—LISTING CONTINUED ON NEXT PAGE



STATUS SIMPLE

These days, buying an audio console is far more complicated than it used to be. There was a time when console decisions were easy. Fashion determined which name to buy. Huge consoles with huge price tags ruled the day. Not anymore! We at Otari want to make today's console decisions painless. The top level of technology is available right now. At a truly amazing price.* Introducing the Status:

Digital control of analog signal path • Master Status Switching • Snapshot Recall of routing and switch functions • Image Recall of all EQ, Aux busses, Panning and Mic trim potentiometers • Fader and Mute Automation on Mix and Channel paths • Metal TT patchbay versions • Optional Moving Fader Automation • Available in 3 frame sizes • and much, much more.

See your local Otari dealer and audition a Status. You'll find it's way more than a symbol!

*PRICING BEGINS AT UNDER \$25,000

OTARI

Otari Corporation
U.S.A.
Phone: 415-341-5900
Fax: 415-341-7200
L.A. Sales: (818) 972-3687
S.E. Sales: (615) 255-6080

Otari Inc.
Japan
Phone: (81) 4-2481-8626
Fax: (81) 4-2481-8633
<http://www.otari.com>

Otari Deutschland GmbH
Germany
Phone: (49) 2159-50861/62/63
Fax: (49) 2159-1778

Otari Singapore Pte., Ltd.
Phone: (65) 284-7211
Fax: (65) 284-4727

—LISTING CONTINUED FROM PREVIOUS PAGE

tems. Developed specifically for "main microphone" recording studio applications, the SPS422 can create highly accurate mono or wide-image stereo recordings. The system comprises a mu ticipusle mic and a 1U rack-mount processor and all microphone parameters can be adjusted from an optimum listening position in the studio control room.

Distributed by QMI
25 South Street
Hopkinton, MA 01748
Phone 508/429-6881; Fax 508/435-4243
Web site <http://www.proaudio.co.uk/sndfield.htm>



Stedman SC3 Condenser Mic

Large-diaphragm 480-volt, phantom-powered condenser with vintage and enhanced sonic mode selector switch. Vocal and acoustic applications. Satin black finish. Cardioid pattern. Frequency response 25-20k Hz; 150 dB max. SPL; 10mV/pascal sensitivity; impedance 250 ohms; bass rolloff 200 Hz; power requirement: 1.2ma 48 volts. Pricing: SC3 mic \$998 (U.S.); matched sets \$2,176. Options: shockmount \$49.50, windscreen \$24. Hand-built in the U.S.A. For literature, call 800/873-0544.

4167 Stedman Dr.
Richland, MI 49083
Phone 616/629-5930; Fax 616/629-4149
E-mail webwld@datawise.net
Web site <http://www.datawise.net/~webwld/sted/stedman.htm>



Telex ENG-500/UT-500 UHF

The ENG-500/UT-500 UHF broadcast wireless microphone system is the first in its class to offer crystal-controlled frequency agility. The ENG-500 receiver has an all-metal case and features six hours of continuous operation on one 9-volt battery. A locking external input power jack allowing 9-18 VDC operation is available. The ENG-500 is a true diversity receiver featuring Posi-Phase® auto diversi-

ty with diversity status indicators. The UT-500 transmitter is designed to plug into any standard, low-impedance (100-10K ohm) dynamic or electret microphone.
9600 Aldrich Ave. S.
Minneapolis, MN 55420
Phone 612/884-4051; Fax 612/884-0043
E-mail Patti.DuFresne@telex.com

Vega R-672 Programmable UHF

The Vega R-672 is a broadcast-quality, 16-channel (front-panel selectable) UHF true-diversity receiver, operating over the 512-806MHz range. Frequencies are user-programmable, and system functions can be remotely controlled. Adjustable helical resonator front ends provide extremely tight frequency "windows." Dynex III audio processing and well-designed audio/RF circuitry provide a S/N of 108 dB; also features dual-mode squelch. Use with Vega T-772 bodypack and T-690 series programmable transmitters or T-677 and T-680 transmitters.



Vega U2020

The Vega U2020 offers 100 user-selectable frequencies over three UHF TV channels; two "splits" are available from 746-782 MHz. The half-rackspace receiver features RF and audio level meters and an XLR output connector; antennae may be mounted front or rear. Bodypack and handheld transmitters with either the E-V N/D557 or N/D757B head are available. Exclusive DX20 companding provides excellent signal-to-noise ratio, and the receiver also has dual-mode squelch. The companion MC-2020 multicoupler provides both RF signal and power to four receivers.

9900 Baldwin Pl.
El Monte, CA 91731-2294
Phone 818/442-0782; Fax 818/444-1342
E-mail 73513.1417@compuserve.com



Allen and Heath GL2000

4-bus front-of-house or stage monitor console featuring 4 bands of EQ with two sweepable bands, six discrete aux sends per channel and rear panel connectors.

8760 S. Sandy Pkwy
Sandy, UT 84070
Phone 801/568-7660; Fax 801/568-7662



AMS/Neve Libra

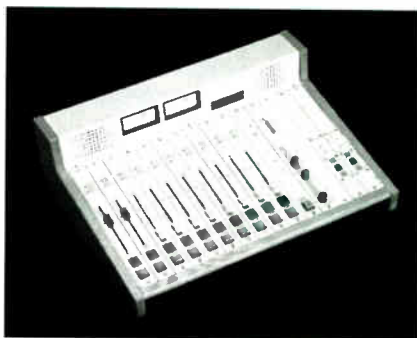
The AES in Los Angeles will see the first U.S. showing of AMS/Neve's new Libra digital music console. Libra is a fully automated digital console designed specifically for music production and optimized for maximum capability at an attractive price. Libra incorporates all the features needed for seamless audio recording and mixing, including integrated machine control and a wide range of digital and analog interfaces. Libra is available in 12, 24 and 48-fader versions.

Billington Road
Burnley, Lancs BB11 5UB UK
Phone 44/1282-457011; Fax 44/1282-417282
E-mail enquiry@ams-neve.com
Web site <http://www.ams-neve.com>

Anatech VCM Recording Console

A music-recording console from famed British designer David Pope (of the Neve V Series). A 32-channel frame offers 64 inputs with 100mm faders on both paths. (This allows motor fader automation for all as an option.) Full 24 bus plus 2 stereo mix bus. It has a compressor/gate on each channel, 12 auxiliary sends and 4-band fully parametric EQ with no concentric knobs. There is an option for recall and reset. Retail: \$75,000 for 32 channels.

1151 W. Valley Blvd.
Alhambra, CA 91803
Phone 800/582-3555; Fax 818/284-3092
E-mail info@martinsound.com
Web site <http://www.martinsound.com>



Audioarts R-16 Radio On-Air Console

Audio mixing console for on-air radio broadcasting, radio news workstation, remote broadcasting and basic radio production control rooms. Features include on-air muting and tally, talkback and com ports, built-in cue speaker, totally modular construction, machine control on every input and many other broadcast features. Like all Audioarts consoles, the R-16 exhibits better than 16-bit digital audio

SHDR1

Soundscape™

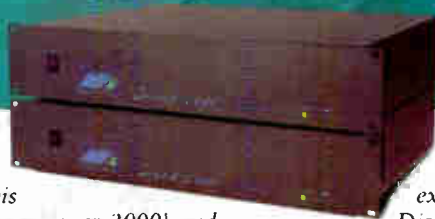
Digital • Audio • Workstations



- IBM PC or Compatible PC
- Full "chase lock sync" to time code
- 8 track expandable to 128 track (16 Units)
- 64 virtual tracks per unit
- Edit on the fly while chasing to video
- Pitch shift /Time stretch/compression (optional)
- Sample rate conversion (optional)
- EDL file support with auto conform (optional)
- Automated Punch in/out
- Multi track glitchless Audio Scrubbing
- Real time fades with 18 Bit Dynamic range
- Sample accurate placement of audio clips
- 999 nameable markers
- Powerful Noise gate for perfect dialog editing
- Full digital parametric EQ
- Removable Hard Drives (optional)
- Loop recording ideal for foley
- Cut/copy/glue/move/reverse/repeat
- Prices from only **\$3,250 list** (8 track system)

"While mixing a recent project I rented a Soundscape system and in only a few hours, with little instruction, was up and running, efficiently continuing my session with no down time. I was very impressed with the Soundscape software and it's features. The sound quality was great and when I asked the price, well... Very impressive!!!"

Alan Howarth, Sound Designer on such films as Halloween, Stargate, The Mask.



In this age of global communications good news travels fast... especially in this industry. Talk to any of our users (there are over 2000) and they'll all tell you the same thing. Soundscape's SSHDR1 has the creative tools to improve productivity, the software is incredibly fast and reliable and saved them a great deal of time and money. This is why more and more of the worlds top professionals in sound design and motion picture editing are changing to Soundscape and the PC for their audio editing. From dialog replacement and foley recording to that blockbuster movie soundtrack the SSHDR1 has some of the fastest and most powerful editing features available.

Is your existing Digital Audio editor expandable from 8 to 128 tracks, with real time editing while chasing time code and have fully parametric EQ? Does it give you 18 bit dynamic range and volume contours generated in real time, with professional I/O and audio quality uncompromised by noise from your computer. With glitchless audio scrubbing for accurate editing and perfect placement of sound effects. Soundscape offers all of this at a price much lower than you would expect.

SEE US AT AES BOOTH # 1005

"Love it - Love it - Love it - Love it - Love it !!! Great box, I've got two of them and session after session I rely on my Soundscapes to deliver the pristine sound that our clients demand. It vari-syncs and chases video like a hound dog and believe-it-or-not the owners manual is intelligible. And HEY!! - just do it... buy one!!!!!!" *Sunny Lake, Cybersound NYC, sound designer/producer for numerous commercials, records and films.*

We've had the pleasure of using Soundscape for sound editing on 'Ace Ventura: When Nature Calls' and 'The Nutty Professor' and found it to be very smooth, very fast and very reliable. Soundscape is the only intelligent choice for your next digital editing workstation. *Odin Benítez, Randall Guth, Dimension Sound (Burbank).*

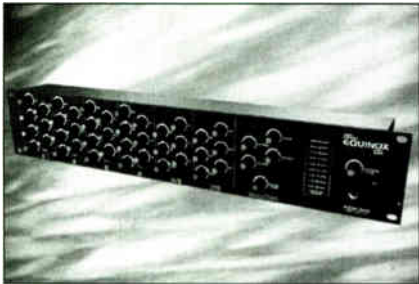
It's affordable-it's modular-it's expandable-it's got crash proof reliability!!! We have 3 x 16 track systems at the studio, and we've used the SSHDR1 on almost every project that's come through the facility. Soundscape is fast becoming one of the top systems around in digital audio post production here as well as around the world. Keep it up, guys!" *Frank Serafine, Sound designer on Star Trek, Virtuosity, Lawnmower man, VR5, Hunt for Red October.*



Soundscape Digital Inc. 4478 Market Street, Suite #704, Ventura, CA 93003 **Tel: (805) 658-7375**
 Gerr Audio Distribution. 2 Thorncliffe Park Drive, Unit 9, Toronto Ontario, M4H 1H2 **Tel: (416) 696 2779**
 USE READER SERVICE CARD FOR MORE INFO

SOUNDSCAPE DIGITAL TECHNOLOGY INC.

performance. \$2,700-\$4,000.
7305 Performance Dr.
Syracuse, NY 13212
Phone 315/452-5000; Fax 315/452-0160
E-mail wheatstone@aol.com



Audio Centron ACM842

The Equinox Series of mixers from Audio Centron packs power and features into one simple-to-use unit with tremendous headroom and low noise. The rack-mountable ACM842 features 4 mic-level XLR and 4 line-level 1/4-inch balanced inputs, 2 sets of stereo pair 1/4-inch inputs, tape in/out w/level, 2 aux sends per channel, 2 stereo aux returns w/level, 2-band EQ, center detents, phantom power, headphone jack and peak LEDs on all mic/line channels. 1400 Fergusson Ave. St. Louis, MO 63133
Phone 314/727-4512; Fax 314/727-8929



Audio Technologies Inc. MXS100

The MXS100 is a studio or portable, 3-channel, switchable microphone/line mixer with low noise balanced inputs, phantom power, panpots, switched low-cut filters and a test tone oscillator driving stereo, metered, low-distortion servo-balanced line outputs with switchable peak limiting. Optional expanders add more inputs. Battery or AC powerable. MXS100 Mixer, stereo line out, three panned microphone/line inputs: \$799. XPS100 Expander, stereo bus out, four panned microphone inputs: \$549. XPS200 Expander, stereo bus out, two stereo line-level inputs: \$379. 328 W. Maple Ave. Horsham, PA 19044
Phone 215/443-0330 or 800/959-0307; Fax 215/443-0394
Web site <http://www.ATIGUYS.com>

Behringer MX 3282

The Eurodesk MX 3282 8-bus is a 32-channel mixer with 24 mic/line channels and four stereo channels and eight sub groups. All mic channels feature 3-band EQ with low-cut filter, mute and pan. The stereo channels have 4-band EQ, mute and balance. The mixer has eight balanced auxes (six switchable pre-fader) and four stereo effects returns. Solo-in-place and PFL on all channels, subgroups and auxes. Distributed By Samson Technologies Box 9031 Syosset, NY 11791-9031
Phone 516/364-2244; Fax 516/364-3888
E-mail sales@samsontech.com



Crest Century LMx

The first monitor console designed from the ground up to provide 100% multimode operation, the LMx offers breakthroughs in routing and control, accurate and visible metering, a clean, logical layout and can configure any or all of its 22 output buses for either mono or stereo pair operation. The LMx also features eight scene mute groups, a globally selectable AFL/PFL solo system, comprehensive subgrouping, separate pre/post switching for every pair of output sends and two separate monitor outputs. 100 Eisenhower Dr. Paramus, NJ 07652
Phone 201/909-8700; Fax 201/909-8744
E-mail webmaster@crestaudio.com
Web site <http://www.crestaudio.com>



D&R Cinemix

Cinemix is D&R's answer to the ever-increasing demands placed upon the high-tech video, film, and post-production studio world of the '90s. A recording console with superb electronics, true dual input path design, complete recall of all digitally controlled routing and switching functions, true LCRS panning and two highly automated signal paths per module, Cinemix is about to change the way you view recording consoles. Rt. 1 Box 54 F Brashear, TX 75420
Phone 903/485-2344
E-mail arna@koyote.com

Ensoniq 1682/1682fx

Designed for project studio and multitrack recording applications, the 16782 is an 8-bus mixer with pro features in a compact package. Standard are 34 inputs on mixdown, phantom power, phase reverse switching, semi-parametric EQ, solo-in-place, four aux sends, four stereo effects returns and a rotatable patch panel to suit various applications. Optional mono and stereo input expander modules allow users to create a custom console for their needs. The 1682fx version has on-board effects with a 24-bit DSP. 155 Great Valley Parkway Malvern, PA 19355
Phone 610/647-3930; fax 610/647-8908
Web site <http://www.ensoniq.com>

Euphonix Hyper Surround

Hyper Surround™ is Euphonix's new software-based panning and busing system that provides sound movement and localization control along with flexible mix busing for

any or all surround sound formats, even multiple formats at the same time! Euphonix provides advanced panning from every channel with front pan, rear pan, surround, Focus™ and divergence while maintaining the same image positioning across simultaneous formats. 11112 Ventura Blvd., #301 Studio City, CA 91604
Phone 818/766-1666; Fax 818/766-3401
Web site <http://www.euphonix.com>

Fidelipac MX/D Digital Broadcast Console

Fidelipac Corp. is introducing its new MX/D Digital Broadcast Console. Based on the popular MX Series, the MX/D offers a user friendly interface. Standard features such as analog and digital inputs, analog and digital output buses, sample rate converted digital inputs and 16 source inputs are just the beginning. Pricing under \$11,000. Box 808 Moorestown, NJ 08057
Phone 609/235-3900; Fax 609/235-7779



Korg SoundLink DRS 168RC

SoundLink Digital Recording Systems is a line of integrated products that bring completely digital, fully automated, component-based recording/mixing to the market at breakthrough prices. At AES is the 168RC Recording Console: a fully digital 16x8x2 device equipped with two ADAT optical inputs, eight analog inputs featuring 18-bit A/D converters, two internal effects processors and full console automation. The 168RC retail is \$3,499. 316 S. Service Road Melville, NY 11747
Phone 516/333-9100; Fax 516/333-9108
E-mail [\(name\)@Korgusa.com](mailto:(name)@Korgusa.com)

Lafont Audio Labs FTC84

The FTC84 LCRS Transfer Console is a machine room-dedicated film/audio/video post-production tool. Its high-gain audio structure (+27 dB) makes it adequate for any format transfer. The FTC84 is an in-line design, with each module carrying two input strips. A 9-module (18-channel) 8-bus/4-monitor standard frame is fitted in a 19-inch rack-mount housing. The meter bridge is located in a separate rackmount unit with the power supply.

Lafont Audio Labs Panoramix Console

The Lafont Panoramix is a large-frame (96 or 192 inputs), in-line, film/audio post surround mixing console with fully discrete 5.1 panning and dynamics on each I/O module. Each module offers two line inputs simultaneously routed to 5x6 bus stems, plus a monitor return input routed to an 8-channel surround monitoring matrix. A 4x stem film/bus (Rec Direct) monitor switching system and Uptown Moving Fader automation are standard. Distributed by Sascom Marketing 34 Nelson St. Oakville, Ontario, Canada L6L 3H6
Phone 905/469-8080; Fax 905/469-1129
E-mail sales@sascom.com
Web site <http://www.sascom.com>

The RØDE™ to Recording Success Starts Here...



The real passion behind a hit song lies in the performance. You want all the emotion and the expression of the performance to burst onto the track and shine its way through the mix. Whether it's a truly great take or just a happy accident, you want that moment captured in all of its glory. When that inspired moment occurs, you need to have the right mic...the RØDE™ NT2.

The RØDE™ has all the special stuff:

- **Dual Gradient Transducers with Large Diaphragm and Gold Plated Membrane** to warmly receive and translate the full body of the performance
- **Internal Gold Plated Connections**, insuring warmth and precise signal transitions for years to come
- **Transformer-less low-noise circuitry**
- **Switchable Filter** enabling you to change the low frequency response
- **Switchable Pad** enabling you to handle high gain
- **Switchable Pattern** providing cardioid or omni patterns
- **High SPL (sound pressure level)** allowing it to work cleanly for screaming vocals or instruments, or even soft spoken word
- It even comes with a **Shock Mount, Flight Case, and Pop Filter.**

The RØDE™ large Diaphragm Condenser Mic is hand-assembled in Australia. In the tradition of the great microphones, it's designed to furnish outstanding, vintage-flavored vocal or instrumentation mixing—at a truly untraditional, breakthrough price . . . \$749.00

Step on the road to recording success by seeking out your nearest EVENT Electronics dealer. Listen to the NT2 and hear the difference a great mic can make.



P.O. Box 4189
Santa Barbara CA 93140-4189
voice 805-962-6926
fax 805-962-3830

RØDE is a trademark of Freedman Electronics.

Miles Technology MTX-62

The MTX-62 is a 6-input, 2-output stereo/dual mic/line mixer designed for basic mixing applications where high-quality sound is needed in one rack space. Features include XLR and 1/4-inch connectors, phantom power, stacking, individual two-band input EQ, input and output level indicators, built-in fourth-order crossover filters and balanced output. 90dB gain, -129dBu EIN, +18dBm output. List price \$499.

1826 S. Third St.
Niles, MI 49120
Phone 800/280-8572; Fax 616/683-4499
E-mail 70252.1727@compuserve.com

Millennia Media Inc. Mixing Suite

GML-compatible modular mixing system intended for critical recording and submixing. Employing fully differential matched discrete summing amplifiers and Millennia's acclaimed mic preamplifiers, the Mixing Suite® delivers unmatched sonic performance. A 20x2 configuration retails for \$14,000.

4200 Day Spring Ct.
Pleasant Valley, CA 95667
Phone 916/647-0750; Fax 916/647-9921
E-mail jli@ns.net

Neotek Multimedia Module

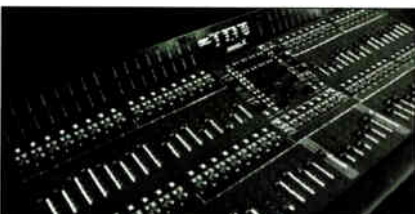
Provides a complete multichannel monitoring system. It accomodates mono, stereo, LCRS and 5.1 channel environments, three loudspeaker systems from mono to 5.1 and provides for insertion of an encode/decode processor. Retail: \$1,995.

1151 W. Valley Blvd.
Alhambra, CA 91803
Phone 800/582-3555; Fax 818/284-3092
E-mail info@martinsound.com
Web site http://www.martinsound.com

Otari Elite

While based on the same core technology as the highly successful Concept-1, Otari's new Elite music and production console offers new features and enhancements. Standard features include Image Recall, an enhanced 4-band equalizer, the new Eagle Automation package and a hinged patchbay. In addition, Elite may be fitted with the new M•PAN™ option for greater flexibility in bus assignment and multichannel film style panning. Moving faders and dynamics are optional.

378 Vintage Park Dr.
Foster City, CA 94404-1134
Phone 415/341-5900; Fax 415/341-7200



RSP Project X Digital Console

The Project X™ Automated Digital Mixing System features integral Circle Surround® encoding and interfacing to ADAT, TDF and AES/EBU devices and analog via 20-bit conversion. Individual input processing includes 4-band parametric EQ, high/lowpass filters, Hush™ noise reduction/gating, compression and up to 42 ms of delay. Two DSPs provide effects (delay, chorus, reverb, pitch shift, etc.) on two of the eight auxes. Dynamic automation and snapshot setup recall is standard as are stereo returns. Project X is configurable for 32 to 64 inputs, from under \$32,000.

2870 Technology Dr.
Rochester Hills, MI 48309
Phone 810/853-3055; Fax 810/853-5937

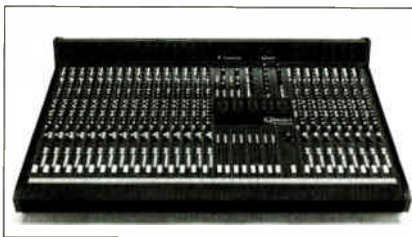
E-mail rocktron@eaglequest.com
Web site http://www.rocktron.com/rsp



Solid State Logic V2 Software

New V2 software for the SL9000 J Series offers off-line mix level, computer-controlled Master Fader Audio-fade, Motion Control Panel with extra buttons supporting more features and enhanced ergonomics and a save Total Recall™ on a single button press. FreeWay is a HiWay datastream on fiber-optic cables for interconnection of distances measured in kilometers. A new SDIF-2 to HiWay interface option connects multitrack machines or other SDIF-2 gear.

Springmill Road, Begbrow
Oxford, OXS 1RU England
Phone 44/1865-842300; Fax 44/1865-842118
E-mail sales@solid-state-logic.com
Web site http://www.solid-state-logic.com



Soundcraft Ghost LE

The Ghost LE console boasts powerful 4-band EQ with two fully parametric mids, 10 aux buses, individual phantom power and phase reverse switching and a new mic preamp that promises the lowest input noise yet. Features also include four stereo returns for 56 inputs from a 24-channel desk at mixdown, 24 and 32 channel frame sizes and a full solo-in-place facility on the main channel path. An LED meterbridge and a 24-channel expander are optional.

Soundcraft K2

K2 is a pro 8-bus console designed for touring or fixed live sound installations. K2 features the same wide-range input preamp as K3, Vienna and Europa, sweepable highpass filter, 4-band EQ with two swept mids plus switchable Q, 8 aux sends with external pre/post switching in pairs, LED input metering, MIDI-controlled muting system with 8 mute groups, 8 subgroups, 8 stereo returns (four on full-length strips), 11x8 matrix and built-in VU output meter bridge. A swap mode allows the aux outputs to access the group fader and insert point for use on foldback mixes. Available in 24/32/40 channel sizes.

1449 Donelson Pike, Ste. 12
Nashville, TN 37217
Phone 818/227-1800; Fax 818/884-2974
E-mail Awelti@harman.com

Soundtracs Jade S

Jade S is an automated, 24-bus production console featuring moving fader automation, LCRS panning, a 24-group in-line format, Assignable Dynamics Processor and a 4-band fully parametric FdB equalizer shareable between channel and monitor. Two-band EQ on monitor inputs.

Very low noise-balanced busing. 12 aux buses, 36 in remix. Separate fader bay. 24/32/40/48 input frames are available with or without patchbay.

Soundtracs Virtua Digital Console

Total 64 inputs to mixdown. 48 full inputs with 4-band parametric EQ, dynamics, 8 aux sends, group and master outputs. 16 return inputs: configured as 8 stereos with level, balance, mute and master output only. 48 full inputs comprise 32 analog mic/lines and 16 digital inputs. The 32 analog inputs are individually remotely switchable between mic (on XLR) and line (on 1/4" jack) connectors. Price: \$35,000. Distributed in the U.S. by Korg

316 S. Service Road
Melville, NY 11747
Phone 516/333-9100; Fax 516/333-9108



Spirit Folio NotePad

Spirit by Soundcraft's newest micro mixer is tailored to fit a host of applications from small live reinforcement to multimedia mixing. Features include 4 balanced mic and line inputs with 48V phantom, 2 stereo inputs with switchable RIAA preamps for turntables, 2 band EQ, post-fade Aux send and stereo effects return, 2 track return, separate Mix and Monitor outputs, headphone out, +4dBu operation, compact size (approx. 9x9x2"). Retail: \$249.95.

Spirit Folio SX

Spirit's Folio SX delivers digital quality sound in both live and recording applications. Features: 12 balanced mic/line inputs, 4 stereo inputs (two with 100mm faders, EQ and auxes), 3-band EQ with sweepable mid, three aux sends, four mix outs (2 can be used as a sub to main mix) and a separate mono out. All surface-mount technology, rack-mount kit available. Retail: \$769.95.

11820 Kemper Rd.
Auburn, CA 95603
Phone 916/888-0488; Fax 916/888-0480

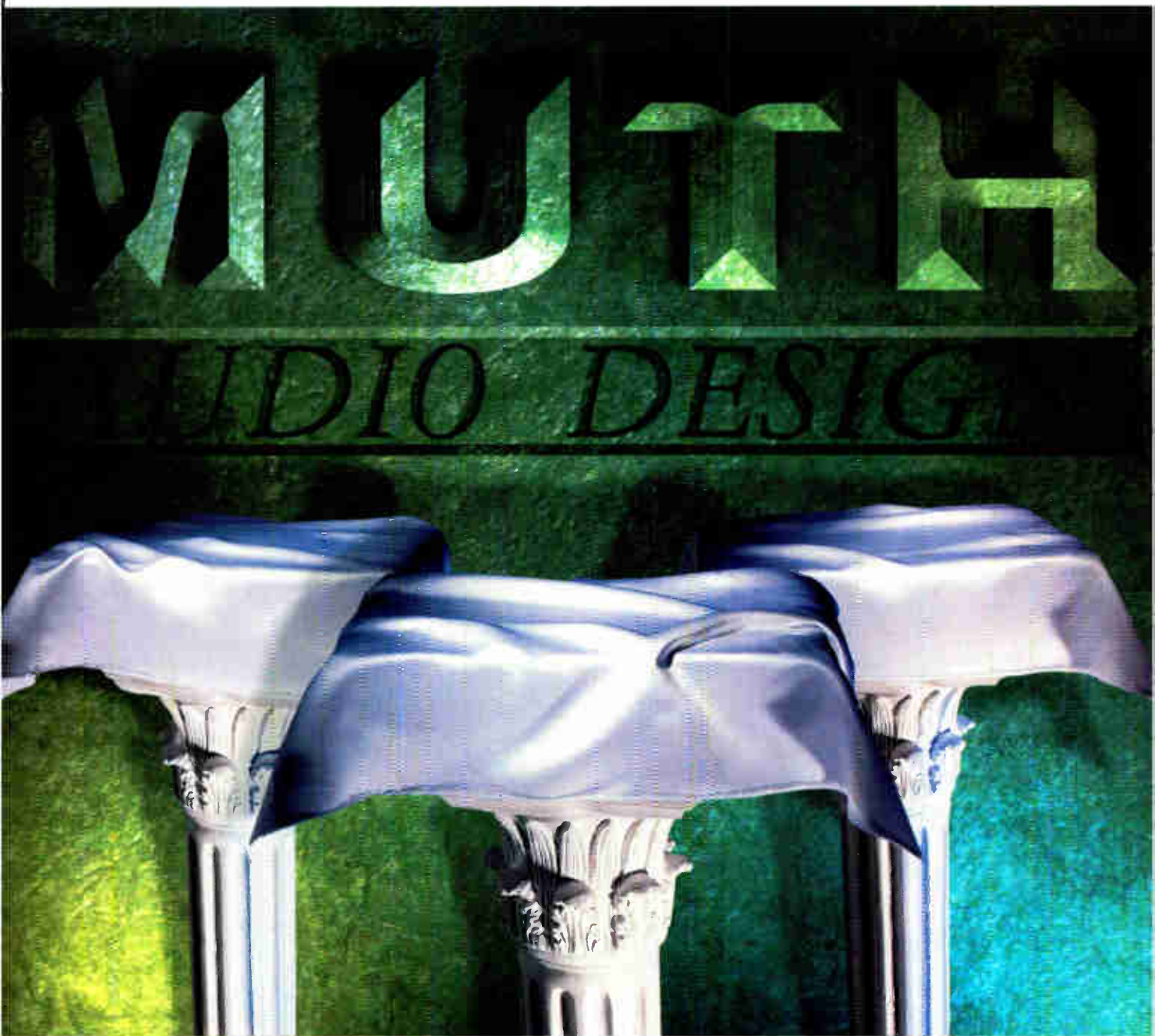


Studiomaster Trilogy

The Trilogy Series TR166 (rackmountable 12x4x2x1) and the TR206 (16x4x2x1) are designed for live sound, stage

—LISTING CONTINUED ON NEXT PAGE

Hear the unveiling of a masterpiece



The Muth Audio Design Mastering Series

SEE US AT AES BOOTH # 123

CM-2020 ANALOG TRANSFER CONSOLE

CM-2040 MASTERING PRE-AMPLIFIER

CM-2080 DIGITAL INPUT SELECTOR

Visit the Muth Audio Design/Z-Systems booth #1461 at the Los Angeles AES or contact Murat Aktar at: **MUTH AUDIO DESIGN LLC**

56 West 45th St., 3rd Floor

New York, NY 10036

tel 212 354-1266 fax 212 354-1477

USE READER SERVICE CARD FOR MORE INFO

—LISTING CONTINUED FROM PREVIOUS PAGE

monitor and multitrack recording. For stage monitor use. Stage mode switching reroutes 4 of the 6 auxes to the 4 subgroup outs. A rack-mountable 10-channel input expander is optional. Features include balanced mic/line inputs, channel direct outputs, 100Hz highpass filter, 3-band channel EQ with midsweep, 6 discrete aux sends, PFL and solo, 60mm faders, balanced outputs and more. Prices: TR166 \$1,195, TR206 \$1,395, TR140 expander \$749. 3941 Miraloma Ave. Anaheim, CA 92807 Phone 714/524-2227; Fax 714/524-5096 E-mail stmstr@ix.netcom.com Web site http://www.studiomaster.com



Wheatstone SP-8 TV Audio Console

Audio console for television broadcasting, cable program providers, remote truck and telco's involved in broadcasting. Features include mix-minus, dedicated metering, pre-selector overbridge, machine start, multiple mute and tally along with many other broadcast only features. Like all Wheatstone consoles, the SP-8 exhibits better than 16-bit digital audio performance. Price: \$50,000-\$80,000 (U.S.). 7305 Performance Dr. Syracuse, NY 13212 Phone 315/452-5000; Fax 315/452-0160 E-mail wheatstone@aol.com

Yamaha O3D Digital Mixer

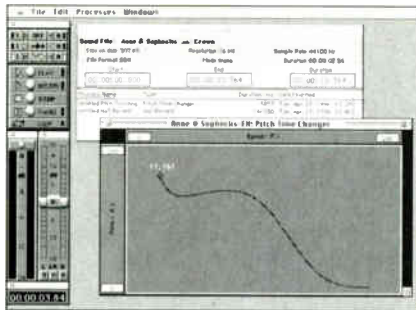
Intended for the audio post and music-recording markets, the Yamaha O3D is a smaller, more affordable version of the O2R digital recording console. The O3D interfaces directly with workstations for automated digital mixing. Features include 24 inputs, 4 bus plus stereo outputs, six aux sends, two internal effects and built-in automation. The Yamaha O3D accepts one digital I/O card, allowing 8 digital inputs and a total of 8 digital sends (4 buses plus 4 direct outs). The O3D features the same large LCD display as the O2R. A mouse may be connected for use with display functions and in selecting parameters and setting changes. 6600 Orangethorpe Ave. Buena Park, CA 90622-6600 Phone 714/522-9011; Fax 714/739-2680 E-mail Info@Yamaha.com Web site http://www.Yamaha.com



Akai CD3000XL

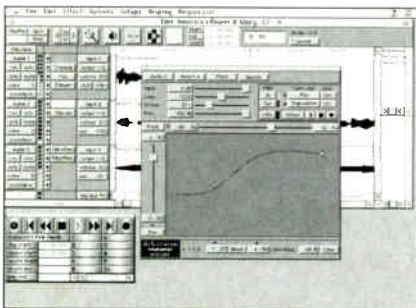
The new Akai CD3000XL sampler is a 3-rackspace professional stereo sampler with a built-in 4x CD-ROM drive. Its open architecture design allows the use of up to 32 MB of standard SIMM RAM and offers the ability to accept the SampleVerb™ 4-bus, voice-assignable multi-effects processor board. In addition, two ROM card slots allow up to 16 MB of nonvolatile flash ROM providing a total of 48 MB of sample storage.

1316 E. Lancaster Ave. Ft. Worth, TX 76102 Phone 817/336-5114; Fax 817/870-1271 E-mail akaiusa@ix.netcom.com Web site http://www.akai.com/akaipro



Arboretum Hyperprism-PPC 1.0

This Power Mac version of our award-winning software requires no additional hardware. Hyperprism-PPC has 21 real-time pro-quality effects including two reverbs and our new EchoTranz™. Sound files are processed on the fly through the Power Mac's Sound Manager. Hyperprism-PPC is a powerful add-on to Power Mac-native audio software, such as sound editors and MIDI sequencers that support Sound Designer II and AIFF file formats. Hyperprism-PPC also runs on Digidesign hardware with the Digi sound driver V. 1.3.1, which is included.



Arboretum Hyperprism-TDM 1.1.2

This Pro Tools/TDM plug-in of our award-winning software offers 23 real-time high-quality effects, including filters, modulation effects, pitch changer and spatial enhancers; built-in MIDI based automation of effects parameter changes; built-in timecode-based automation of effects parameter changes. Hyperprism-TDM has become the plug-in of choice for many Digidesign buyers. Compatible with most TDM software including Pro Tools 3.2, Studio Vision 3.0, Logic Audio 2.5 and Digital Performer 1.6. 915 Cole St., Ste. 387 San Francisco, CA 94117 Phone 415/626-4440; Fax 415/626-4439 E-mail info@arboretum.com Web site http://www.arboretum.com/

Corel Corporation Stock Music

The Corel Stock Music library is a set of 10 CD-ROMS with 352 minutes of royalty-free (except public performance) music in CD-audio and .WAV formats for multimedia producers. Clips are in 10/30/120-second lengths and presented in 21 styles, from corporate to classical, R&B to ambient. Retail: \$59 U.S. 1600 Carling Ave. Ottawa, Ontario, Canada K1Z 8R7 Phone 613/728-8200; Fax 613/761-9176 Web site http://www.corel.com

Cory Products Ultimate Care Kit

Keyboard Detailer, the industry standard for one-step cleaning and maintaining synths, samplers and electronic pianos. It also can be used on speaker cabinets, recording consoles, cases and much more. Key-Brite key cleaner, a nonabrasive, environmentally friendly cleaner can be used on ivory, plastic, acrylic, wood and even computer keyboards for a gentle, deep cleaning. Includes Power Buffers that are 100% chemical-free, machine-washable fleece. Retail: \$19.95. 2057 Goodyear Ave., Ste. F Ventura, CA 93003 Phone 914/528-1978; Fax 914/528-2158 E-mail GERRYCRPT@aol.com

Creative Support Services Digital Ditties II

Part Two of this library will include even more of the world's most time-honored musicians. A great addition for those in broadcast production, multimedia or video production. Price: \$199 for a 99-year license. Free demo available. 1950 Riverside Dr. Los Angeles, CA 90039 Phone 800/468-6874; Fax 213/660-2070 E-mail mfuller@cssmusic.com Web site http://www.cssmusic.com

Egnater TDL 50 Series

New "baby brother" of the acclaimed TOL 100-MICA Series guitar amp. Features two channels with individual voicing and bright switches. Reverb, density, series/parallel loop and 50/10-watt switch. One 12-inch Vintage 30 Celestion. Combo version: \$1,150. Head version: \$1,000. Enhanced version (the TOL 50X): \$1,600. 860 Livernois Ave. Ferndale, MI 48220 Phone 810/399-6208; Fax 810/399-5312

E-mu Systems EIVX and EIVX Turbo

The EIVX and EIVX Turbo are rackmount samplers that run EOS software and follow the EIV lineage. The EIVX features 64-channel polyphony (expandable to 128), 4 MB of RAM (expandable to 128 MB), 540MB hard drive, FLASH-based OS for easy upgrades, 4 MB of CPU/preset RAM, onboard FX, internal DSP option slot, 3 external options slots. Features include 8 1/4-inch TRS balanced outputs and 2 balanced inputs, SCSI and MIDI in/out/thru. Options include 8 more outputs (for 16 total) and 32-channel MIDI. The Turbo model has 128 channels of polyphony, 16 MB of RAM and a 1GB hard drive. 1600 Green Hills Rd. Scotts Valley, CA 95067 Phone 408/438-1921; Fax 408/438-8612 Web site http://www.emu.com

Hollywood Edge European Edition

CDs of sound effects from tape effects studios located in the famous Pinewood Studios in London, whose film credits include *Superman 1, 2, 3*, *Christmas Carol*, *The Omen*, *Chariots of Fire*, *Patton* and many more. Sets include cars, planes, horse and carriages, industry, guns and lots of period material as far back as the late 1800s. All mastered to today's digital standards. 7060 Hollywood Blvd., Ste. 1120 Hollywood, CA 90028 Phone 800/292-3755; Fax 213/466-5861 E-mail edgesw@aol.com Web site http://www.hollywoodedge.com

Korg Trinity Plus

The 61-key Trinity Plus has 375 new Multisounds and 258 new drum samples yielding 256 programs and 256 combinations. Over 100 effect types with real-time control (up to ten effects simultaneously) are included, as are built-in 3.5-inch HD disk drive, four outputs, high-res touchscreen display and 80,000-note/16-track sequencer. A Solo Synthesizer enhancement delivers physically modeled analog synthesizer and emulative sounds. Optional:

KURZWEIL K2500

THE REVIEWS ARE IN!

There has never been a keyboard like the K2500 and the K2500X in the world! Kurzweil has created the ultimate performance keyboard, with more standard features and control, more expandability, and more power than any other instrument at even twice the price! With an uncanny ability to recreate the sound of all other keyboards, the K2500 Series establishes itself as the benchmark to which all other keyboards aspire. Now that we've had our say, don't just take our word for it... read what the reviews have to say. Then visit your dealer to hear and see what you've been missing. In a world of me-too clones the K2500 stands alone... anything else is settling for second best!

ELECTRONIC MUSICIAN - MAY 1996

"There are so many enhancements in the K2500 that it would be impossible to describe them all in a single review. The K2500 is even deeper and more powerful than its predecessor the K2000. The K2500 has one of the most powerful sequencers in any keyboard workstation today. I found it very easy to get around thanks to a logical layout. The editing functions are remarkably complete, and provide a variety of useful record and playback parameters, including quantization on input, auto punch-in and punch-out, looping, synchronization, count-off, and click options. Of special note is the powerful arpeggiator that can be used in Setup Mode. The ribbons are great fun to use. They let you play incredibly expressive vibrato and pitch bends. You can audition samples directly from disk without loading, which is very convenient. I applaud the breath controller input; it is far too rare in the synth world. The setups inspire creativity when you play them. It sounds fantastic, it's packed with useful and well-implemented features, its lineage is impeccable, and it will continue to expand and improve. The K2500 is truly an awesome instrument. All that remains is for you to write a check!" - *Scott Wilkinson*

KEYBOARD - MAY 1996

"As a synthesizer, the K2500, like its predecessor, is easily the deepest instrument you can buy. We couldn't wait to get our hands on one. The piano daughterboard (optional) provides a stunning stereo grand piano... you'd be hard-pressed to find a more playable instrument. It's warm, full, and responsive, and sounds equally realistic from one end of the keyboard to the other. The ribbon (controller) surface feels just right. The control over key velocity is superb. Basically, this is a serious piece of gear. The built-in sequencer has enough power to keep you jamming for a good long time. The sequencer has a much higher clock resolution than any other built-in sequencer that we know of. The K2500 is unabashedly aimed at the professional... it's a class act all the way. When it comes to overall musical muscle, this instrument really has no competition... this is the Steinway of electronic music." - *Jim Aikin*

1996 TEC AWARD NOMINEE

K2500XS

Award Winning/State-of-the-Art
Synthesis/Sampling/Performance
Keyboard Technology

SEE US AT AES BOOTH # 1001

KURZWEIL

MUSIC SYSTEMS

THE BEST KEEPS GETTING BETTER!

www.youngchang.com/kurzweil email to kurzweil@aol.com

Kurzweil Music Systems, 13336 Alondra Blvd., Cerritos, CA 90703 Tel: 310-926-3200 Fax: 310-404-0748
Young Chang (Piano) Canada Corp., 395 Cochrane Dr.,
Markham, Ontario L3R 9R5 Tel: 905-513-6240 Fax: 905-513-9445

USE READER SERVICE CARD FOR MORE INFO

WORLD Radio History

NOT JUST ANOTHER PRETTY INTERFACE

Presenting powerful digital audio mixing, effects, disk recording, editing, and CD-R mastering in an amazing new digital audio workstation for Windows 95 or Windows NT.

Pyramix takes DAW performance to a new level and puts you in control of your own Virtual Studio!

pyramix virtual studio

Digital Audio Mixing with unique Virtual Studio Design features

Direct digital connection from PC to ADAT and Tascam DA-88/38



Digital Effects Processing - EQ, Dynamics, Digital Delay, ...

Multi-Channel Disk Recording

Powerful Editing features in an integrated and easy-to-use interface

CD-R Mastering with DDP option

SMPT - LTC & VITC

16, 20, 24 bit audio quality

Integrated Media Management system with libraries and network support

Open Media Framework support for DAW system compatibility



Want to see more ?

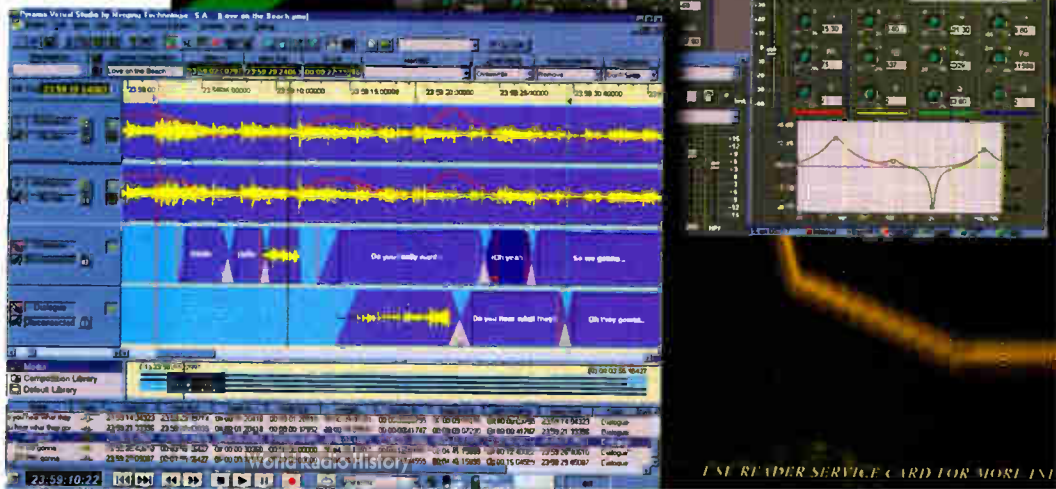


11440 W. Bernardo Court Ct., #250
San Diego, CA 92127
Tel (619) 675-9703
FAX (619) 675-2247

3340 Dundee Rd. Suite 2C-3
Northbrook, IL 60062
Tel (847) 272-0500
FAX (847) 272-0597

Le Verney, E
CH-1604 Puidoux, Switzerland
Tel +41 21 931 5011
FAX +41 21 931 5015

email: info@merging.com
web: www.merging.com



USE READER SERVICE CARD FOR MORE INFO

• AES NEW PRODUCTS GUIDE 1996

hard disk recording board with fully automatic 4-track playback, ADAT I/O, SCSI interface and Flash ROM for accessing Korg and Akai sound libraries. Trinity 61-note DRS: \$3,599. Trinity Plus 61-note w/solo synth board: \$3,999. Trinity Pro 76-note DRS: \$4,799. Trinity Pro X 88 weighted key DRS: \$6,000.

316 S. Service Road
Melville, NY 11747
Phone 516/333-9100; Fax 516/333-9108

Little Labs PCP Distro

PCP stands for professional (+4 dBm 600Ω) to cheap pedal interface and instrument distribution/splitter. Three pro level inputs and one instrument level input can be selected for each of the guitar level outputs. The guitar level outputs are transformer-isolated, eliminating hum problems which occur when splitting guitar feeds and allows individual phase reversal of the outputs. The PCP also has a high-quality direct box output. The PCP was designed by ear to please yours.

8033 Sunset Blvd., Ste. 889
Los Angeles, CA 90046
Phone 800/642-0064; Fax 213/851-6860
E-mail littlelabs@earthlink.net
Web site <http://www.earthlink.net/~littlelabs/>

QCCS PBTM Music Library

Latest release of our Production Music Library, "Volume 19 Contemporary Variety" features 12 variety themes plus a 30 + 60 second commercial segue. One of the most popular buy-out libraries on the market. A wide variety of styles and moods in the complete library. Prices start at \$59.95 per CD.

1350 Chambers St.
Eugene, OR 97402

Phone 541/345-0212; Fax 541/345-8117
E-mail mrbptm1@aol.com
Web site <http://www.pbtm.com>

River City Buy-Out Library

In the Broadcast Series, each CD features a wide variety of music all in full song lengths followed by :60, :30, :15 and :10 edits. Categories on each disc are Sports, Mellow, Corp/Ind, Country, Rock, Hi-tech, Atmospheric, Urban and Misc. In the Specialty Series, each CD is dedicated to a specific style of music. CDs include "Weddings," "Nature," "Country," "Corp/Ind," "Mellow," "Christmas," "Sports," "Classical I" (Orchestral), "Classical II" (Solos and Duets).

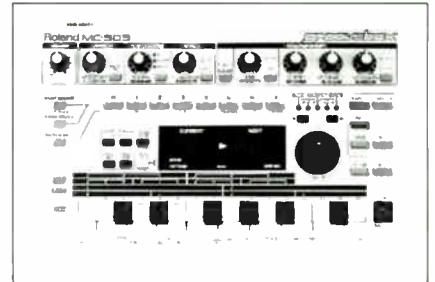
Box 750786
Memphis, TN 38175
Phone 800/755-8729 or 901/274-7277



Roland DJ-70mkII

The Roland DJ-70mkII sampling workstation is an updated version of the innovative DJ-70, a workstation that set the standard for club DJs, remix artists and broadcast professionals. Features stereo 16-bit digital sampling with synthesis capability, resonant filters, envelopes and LFOs. Memory expandable to 32 MB. SCSI interface with "Load While Play" capability, BPM Adjust function to match mul-

ti-ple sample phrases with different tempos to a new master tempo. Specialized DJ performance controls: 8 play pads, scratch dial and 37-note keyboard. 8-track Realtime Phrase Sequencer (RPS). Compatible with Roland and Akai CD-ROM sample libraries.



Roland MC-303 Groove Box

The Roland MC-303 Groove Box is a self-contained, retro-styled sequencer and integrated sound module that features 448 dedicated dance sounds; 40 synth basses; 35 synth leads; 33 synth pads; 12 rhythm kits (including TR-808, TR-909, techno, jungle and house); vintage synth sounds and arpeggios; preset and user dance patterns; 8-part multitimbral; 8-track sequencer; resonant filter, LFO, envelope control and built-in effects: delay, reverb, flanger and chorus; and a Low Boost feature. List: \$895.

7200 Dominion Circle
Los Angeles, CA 90040
Phone 213/685-5141; Fax 213/722-0911
Web site <http://www.rolandus.com>

Lost in a Digital Switching Sea? Look for the "Lighthouse" !!!



Lighthouse Digital Systems DCA Series Audio Matrix Switcher Will Do More For You Than Your Current Hardwired Patch Bay Or Rats Nest:

- 8 Inputs to 8 Outputs, Expandable to 16 Inputs to 16 Outputs
- Any Input can go to Multiple Output, Each Output Connects to any Single Input
- Alpha-numeric Designation on all Inputs & Outputs
- Remote Control via Available Panels or RS-232 Terminal
- AES/EBU (+5 volt diff., XLR conn.), 0.01 to 50Mb/s Throughput
- Buffered I/O, Fast Switching, < 0.2µsec. Delay
- 8 Setup Storage Memories
- Non-volatile Back-up on Set-ups
- Front Access on 1 I/O (#8), with S/P DIF BNC Connector

Larger, Modular, Incremental Systems Available in the K-Series:

- * Digital AES/EBU up to 64x64 (increments of 16)
- * Digital Video up to 128x128 (increments of 16)
- * Multi-levels, Digital-Audio, Video, Timecode and Machine Control. Four Levels to One Frame
- * Quotes Available on Custom Configurations

Lighthouse Digital Systems, Inc.

a Sundance Systems Company

P.O. Box 1802, Grass Valley, CA 95945 Ph: 800-323-8289 <http://www.litehs.com>

SEE US AT AES BOOTH # 148



Sound Ideas "Hanna-Barbera Library"

This collection of over 350 priceless sound effects has been digitally remastered to create the newest addition to the Hanna-Barbera SFX Library—a new CD of great sound effects from the classic cartoons and Super Heroes of the '60s and '70s, including The Herculoids, The Impossibles, Johnny Quest, Space Ghost, The Banana Splits, The Smurfs, plus more of those unique signature sounds from The Flintstones.



Sound Ideas Turner SFX Library

The Turner Entertainment Company Sound Effects Library is an epic collection of sound effects originating from their vast collection of MGM major motion pictures, such as 2001, Dr. Zhivago, Ben Hur and Gone With the Wind. The Library consists of 3 CDs and contains over 500 sound effects, all digitally remastered.

105 W. Beaver Creek Rd., Ste. 4

Richmond Hill, Ontario, Canada L4B 1C6

Phone 905/886-5000 or 800/387-3030; Fax 905/886-6800

E-mail si@sound-ideas.com

Web site <http://www.sound-ideas.com>

Spectrasonics "Grooves"

Two new libraries from Spectrasonics take grooves to the next level. "Burning Grooves" features L.A. slammer Abe Labor el Jr. laying down the grooves with extreme remixes by producer Eric Persing. Unrelenting alternative, power-funk, progressive soul, rock and roll and grunge-head loops in a wide variety of tempos and mixes. "Liquid Grooves": fluid rhythms forged by a synthesis of propelling live drum grooves and unusual, organic percussion loops, transformed into a unique sonic texture. Audio CD: \$99. CD-ROM w/audio for Roland, Akai/E-mu/ASR, SampleCell, Kurzweil: \$199.

Spectrasonics Double Platinum Drums

Produced by John Boylan and drummer Michael Bots. Phenomenally well-recorded grooves and kits recorded in place, with dry and room mixes. Grooves include Rock, Pop Rock, R&B, Slow Rock, New Orleans, Funk, Hard Rock, '50s Rock, Latin and more. Multiple intros, fills, time and ends at every style and BPM for complete tracks. Over 500 loops and phrases and over 400 Hits make up the multidynamic kits. Rock 'n' roll attitude. Two-CD audio set: \$129. 2-CD-ROM set for Roland, Akai/E-mu/ASR, SampleCell, Kurzweil: \$299.

Distributed by ILIO Entertainment

Box 6211

Mailibu, CA 90264

Phone 800/747-4546 or 818/707-7222; Fax 818/707-8552

E-mail ilioinfo@ilio.com

Web site <http://www.ilio.com>



Stick Enterprises Stick Bass™

Stick Enterprises' new two-handed tapping fretboard, Stick Bass™, is a very slim, monaural, 7-string version of The Stick. It is equipped with switchable custom Bartolini and Lace pickups and is tuned from very low B up in fourths to high F. The neck is uniformly 2 1/4 inches wide. Scale length is 33 3/4 inches as on standard Stick. Price: \$960 with no extra charges for custom tunings as all components are adjustable.

6011 Woodlake Ave.

Woodland Hills, CA 91367-3238

Phone 818/884-2001; Fax 818/883-0668

E-mail stick@earthlink.net

Web site <http://clever.net.stick/stickwire>

TRF Music Track Library

Available from TRF, this excellent collection of production music was written by outstanding composers and recorded by some of the finest musicians in the world, especially designed for use as film scoring, theme and background underscores. Initial CDs include Drama and Suspense, Nature, Mystery and Emotion, Nostalgia, Urban, Blues, Jazz and Rock, all with 15, 30 and 60-second jingle-length versions as well as short stings/links and alternate mixes. Instrumental combinations range from full symphony orchestra to small groups. Call for a demo and a rate sheet on per-use licensing or inexpensive Annual Blanket Licenses.

TRF Tele Music/Bosworth Releases

TRF announces five new CDs to its Tele Music Library and two new releases to its Bosworth Library, adding to the more than 50,000 selections (4,000 discs) already in the TRF libraries. All compact discs can be received "On Approval." Call for a free demo and a rate sheet on per use licensing or inexpensive Annual Blanket Licenses.

747 Chestnut Ridge Rd.

Chestnut Ridge, NY 10977

Phone 800/899-MUSIC; Fax 914/356-0895

E-mail trfemail@aol.com



ADA Micro Amp-100

Stereo single-rackspace 100-watt power amplifier. Two independent stereo 50 watts into 4-ohm channels, bridgeable to 100 watts into 8 ohms. Separate volume controls and unique low-frequency (resonance) and high-frequency (presence) band-boost filters. Ultrarugged solid-state power. Retro-look panel, knobs and switches.

420 Lesser St.

Oakland, CA 94601

Phone 510/532-1152; Fax 510/532-1641

E-mail sales@adasignal.com

Web site <http://www.adasignal.com>



Apogee Sound Amp Control Software

Software allows Apogee DA Series Digitally Controlled amplifiers to be networked right out of the box. (SA Series amps require an easily installed network card.) The new software operates in Windows and is configured like a mixing desk for ease of use. Graphs show amp temperature, line voltage, output voltage, output wattage and many other parameters. Apogee's new software can also generate comprehensive reports for preventive maintenance and predicting loudspeaker problems.

2180 S. McDowell Blvd.

Petaluma, CA 94954

Phone 707/778-8887; Fax 707/778-6923

Australian Monitor ERA Series

The ERA Series stereo power amp, derived from our K Series, has an extremely quiet signal-to-noise ratio and features a rugged 2-rackspace chassis. ERA P121: stereo 175W into 4Ω; ERA P222: stereo 250W into 4Ω.

Australian Monitor AM 3002

The AM 3002 features two channels supplying 1,500 watts each into a 2Ω load. The AM 3002 is to be used primarily for subwoofers and other low-end applications.

PO Box 226

Malvern, PA 19355

Phone 610/380-1394; Fax 610/380-1358

Carver Professional PX Series

The new PX Series provides advanced features with high watts per dollar. Per channel into 4 ohms, the PX1450 delivers 725W, the PX850 delivers 425W and the PX450 delivers 225W. The PX Series is equipped with Signal Smart Standby Circuitry, which powers down the amplifier without a signal present. Neutrik™ combi connectors accept 1/2" or XLR input connectors. Front or rear switchable gain controls. Externally configurable gain sensitivity settings. Also available with 24 karat gold-plated barrier strips: PX1450BR, PX850BR and PX450BR.

PO Box 83189

Portland, OR 97283

Phone 503/978-3344; Fax 503/978-3302

Demeter VTP325

325-watt tube mono block power amplifier. Full bandwidth 20 Hz to 20 kHz, ±1 dB, 0.06% THD @ 1 watt. Less than 1% THD at full power, full bandwidth. Features an ultra-linear design, switchable pentode/triode mode. Individual tube bias control, 4 and 8 ohm output impedance. Uses eight 6550c output tubes, one 12AX7A and one 12AT7A preamp tube in a rugged 65-pound rackmount package. Price approx. \$1,800.

2912 Colorado Ave., #204

Santa Monica, CA 90404

Phone 310/829-4383; Fax 310/829-3755

Web site <http://www.loop.com/mits/demeter.htm>

Hot House Professional Amplifiers

With five new units ranging in power from 400 to over 3,000 watts, Hot House has refined its original audiophile design: no global feedback, extremely fast recovery time, superb square wave performance and exceptionally stable wide bandwidth response into reactive loads. Graceful clipping characteristics and benign, almost purely second

harmonic distortion guarantee nonfatiguing musical performance and "inner detail" equaling the best tube designs from an extremely high-current MOSFET output stage. \$1,199/400W, \$2,199/600W, \$2,599/1,000W, \$3,599/2,000W, \$4,599/3,000W.

275 Martin Ave.
Highland, NY 12528
Phone 914/691-6077; Fax 914/691-6822



Mackie FR Series M-1200

The M-1200™ features T-design constant gradient cooling for enhanced thermal cooling, 1,200 watts, 4 ohms bridged, 600+600 watts into 2 ohms, sustained ultralow impedance capability, built-in sweepable constant directivity horn compensation, built-in sweepable highpass filter, built-in switchable lowpass subwoofer crossover, defeatable clip eliminator and ultralow frequency subsonic stabilizer. Retail \$599.

16220 Wood-Red Rd. N.E.
Woodinville, WA 98072
Phone 206/487-4333; Fax 206/487-4337
E-mail mackie@mackie.com



Miles Technology MPR-450R

The Miles Technology MPR-450R is a new version of the MPR Series of multichannel power amplifiers. This rack-mount, 6-channel power amplifier has gold RCA input connections and is suitable for home recording studios, rackmount home theater systems and other applications requiring RCA connectors. Output power is 60W/ch 8 ohms, 75W/ch 4 ohms or 150W/ch bridged into 8 ohms, with all channels driven simultaneously. List: \$979.

1826 S. Third St.
Niles, MI 49120
Phone 800/280-8572; Fax 616/683-4499
E-mail 70252.1727@compuserve.com

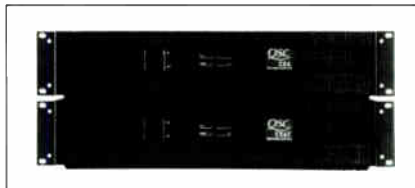


Peavey CS 1800G

A professional sound reinforcement power amplifier capable of 1800W RMS into 4 ohms bridged or 900 watts per channel into 2 ohms. THD (20 Hz to 20 kHz) remains <0.04%—excellent for any professional amp, but truly remarkable for a Class G amplifier with its multiple power supplies. The CS™ 1800 G delivers the same power as the industry-standard CS 1200X in two standard 19" rack-spaces, weighing a trim 35 pounds.

711 A St.

Meridian, MS 39301
Phone 601/483-5365; Fax 601/486-1278
E-mail ernie@peavey.e-mail.com
Web site: <http://www.peavey.com>



QSC CX4T

QSC adds the CX4 and CX4T amplifiers to its CX Contractor Series. The CX4T features built-in wide-bandwidth 25-, 70- and 100-volt isolated toroidal output transformers for convenience, high performance and worldwide safety agency compliance. The CX4 is rated at 150 watts/channel into 8 ohms and 225 watts/channel into 4 ohms. The CX4T adds constant voltage output capability of 175 watts at 70V and 100V, and 150 watts at 25V.

QSC PowerLight 2.0 HV

The PowerLight 2.0 HV is optimized for users who need maximum power at 8 and 4 ohms. It delivers 650W/ch @ 8Ω and 1,000W/ch @ 4Ω in an 18-pound, 2U chassis. All PowerLights will also have a uniform feature set, which includes defeatable clip limiters and a "data port" for computer control. Other new models to be announced at the show include a new ultrahigh-power version that will feature breakthrough amplifier technology.

1675 MacArthur Blvd.
Costa Mesa, CA 92626
Phone 714/754-6175; Fax 714/754-6174
E-mail info@qscaudio.com
Web site <http://www.qscaudio.com>



Renkus-Heinz P2800/P2801

The P2800A features a fully symmetrical, high-linearity design, delivers audiophile sonic purity and includes protective circuitry to safeguard against damage from overheating, short circuits and subsonic or ultrasonic signals. It includes an exclusive adaptive limiter circuit and accommodates our advanced plug-in controller modules. Power output ratings are 500W/ch into 8 ohms; 750 W/ch into 4 ohms; 1,000W/ch into 2 ohms; 2,000 W into 4 ohm bridged. The P2800A offers reliability, superior sound quality and rugged construction.

17191 Armstrong Ave.
Irvine, CA 92614
Phone 714/250-0166; Fax 714/250-1035

Stewart Pro Reference Series

Pro Reference™ (PR-500 & PR-1000) Series are single-rack-space, convection-cooled professional amps featuring polished chrome face plates, gold-plated input and output connectors and accept balanced and unbalanced signals via XLR or 1/4" TRS terminations. Output connections are via binding post or 1/4" phone jacks. PR-500 and PR-1000 feature Stewart's exclusive Harmonic Shift Correction. Five-year warranty. PR-500 at \$799 and PR-1000 at \$1,099 retail.

NEW CONSOLE? THINK NEOTEK.

**NEOTEK:
THE PROFESSIONAL'S
CHOICE FOR OVER
25 YEARS.**

- Excellent sonics at exceptional prices.
- Dedicated consoles for every application: music, film/post, ADR/foley and broadcast.
- Quality built—gives your clients the solid feel of a fully professional console.
- An attitude that always puts customer service and satisfaction first.



Neotek Elan, Hilltop Recording, Nashville

**Call (800) 582-3555 for
details or visit our web site,
www.martinsound.com**



Neotek
The future is clear.

A Martinsound Company
1151 W. Valley Blvd.
Alhambra, CA 91803-2493
(818) 281-3555
FAX: (818) 284-3092

USE READER SERVICE CARD FOR MORE INFO



Stewart World Series

The World™ Series consists of five amps: World 250, 600, 1.2, 1.6 and 2.1. They feature front panel detented level controls, power output ranging from 250 watts to 2,100 watts RMS and weigh 7 to 17 pounds. The World Series accepts balanced or unbalanced signals via XLR or 1/4" TRS terminations. Output connections are made via 6-gauge, 5-way binding post or 1/4" phone jacks. Five-year warranty. World 250, \$439; 600, \$699; 1.2, \$999; 1.6, \$1,199; and 2.1, \$1,399 retail.

120 Blue Ravine Rd., #2
Folsom, CA 95630
Phone 916/985-7200; Fax 916/985-7600



Aardvark Studio12

12-channel I/O card: Haven't you always wanted to edit the tracks on your ADAT? Bring in all eight ADAT tracks plus four more channels for audio editing on the PC. Turn your ADAT project studio into full-feature editing with your favorite software. Bounce tracks to/from DAT. Analog out for easy monitoring. 18-bit conversion. 12-ch I/O includes 8-ch ADAT optical in/out, 2-ch S/PDIF in/out, 2-ch analog in/out.

202 E. Washington, Ste. 306
Ann Arbor, MI 48104
Phone 313/665-8899; Fax 313/665-9694
E-mail lovell@aardvark-pro.com
Web site <http://www.aardvark-pro.com>



Akai/IMC DD8

The DD8 Digital Disk Recorder is the newest 8-track digital recorder Akai has added to its growing family of compatible recorder/editors. The DD8 is designed as a random-access digital film dubber that offers plug-and-play replacement of DA-88s. It offers an optional onboard 2.6GB magneto-optical drive that provides instant removability on reliable media and data compatibility with the Akai DD1500 recorder/editor.

1316 E. Lancaster Ave.
Ft. Worth, TX 76102
Phone 817/336-5114; Fax 817/870-1271
E-mail akaiusa@ix.netcom.com
Web site <http://www.akai.com/akaipro>

Apogee Electronics CD-R

Apogee recordable CDs (in 63- and 74-minute lengths) are designed for minimum error rate and maximum archive life. Featuring high-quality "gold" Pthalocyanine dye, Apogee discs require lower laser energy and offer higher reliability along with a "DataSaver" resin layer that protects the disc from environmental damage. The disc also includes minimal surface printing—proven to increase longevity. Special "CD Pens" are available to end dye degradation problems due to writing on CD-Rs.

3145 Donald Douglas Loop S.
Santa Monica, CA 90405
Phone 310/915-1000; Fax 310/391-6262
E-mail info@apogeedigital.com
Web site <http://www.apogeedigital.com>



Augan Instruments OMX 24

The Augan OMX 24 represents the latest developments in digital audio workstations. The system features up to 24-track, 24-bit, 96kHz recording with up to 24 analog or digital inputs and outputs. The OMX 24 will accommodate magneto-optical, fixed, removable or cartridge hard disk storage systems. Key features include outstanding 24-bit sound quality, true multitrack and film dubber emulation, sophisticated editing facilities, advanced serial and parallel interfacing and OMF interchange compatibility.

Distributed by Sascom Marketing
34 Nelson St.
Oakville, Ontario, Canada L6L 3H6
Phone 905/469-8080; Fax 905/469-1129
E-mail sales@sascom.com
Web site <http://www.sascom.com>



BASF Reference Maxima TPII

High-bias audio cassettes designed especially for studio use. The formulation provides for outstanding recording level headroom with minimum distortion. Specially marked hubs allow for easy cueing and editing. Available in 10-, 20-, 30-, 60-, 90- and 100-minute lengths.

BASF Splicing & Leader Tapes

BASF is introducing a full line supply of audio splicing and leader tapes for use in the studio market. These tapes, previously only distributed in Europe, are being introduced to complement BASF's audio studio and broadcast tape lineup. Splicing tape is available in 1/4" and 1/2" and the leader tape comes in 1/4", 1/2" and 2".

9 Oak Park Dr.
Bedford, MA 01730
Phone 617/271-4000; Fax 617/275-2708



CreamWare CUTmaster

State-of-the-art Pentium-based digital audio production system for broadcasters. Lightning-fast editing, superb sound quality, networking, MPEG II editing and file transfer, full real-time DSP suite, synchronization, CARTmaster, audio preview and format conversion. No other system provides such reliability and ease of use at such a low price (starting at \$2,395).

CreamWare tripleDAT CDR

Full Red Book CD writing is added to tripleDAT digital audio production system for Pentium-based PCs. Support for all major CD writers on the market. Allows both track-at-once and Red Book disk-at-once modes. This feature, combined with tripleDAT's four I/O hardware/software package and the WaveWalkers DSP suite, set a new standard for DAWs and for value, at just \$1,798.

446 Harrison St.
Sumas, WA 98295
Phone 800/899-1939; Fax 604/527-9934
E-mail sjmckay@axionet.com
Web site <http://www.creamware.com>

Denon DN-610F CD/Cassette Combi Deck

Independent CD and cassette in a single 3-rackspace unit. Independent operation of both CD and cassette, including simultaneous playback. Mixed or separate outputs. CD: digital servo circuit, hologram, pickup, direct track access. Cassette: auto-reverse, full logic mechanism, permalloy heads, Dolby B, pitch change ±12%, music search. Internal dubbing from CD to cassette. IF remote control (hand-held remote optional). Auto tape selector. 19x5.2x11.4 inches.



Denon DN1100R Minidisc Recorder/Player

Ten "Hot Start" buttons, cue to music, track select, play modes, end of message (EOM), fade in, fader start, manual search, instant recording, auto track increment, manual track increment, pre-UTOC system, digital co-axial input, editing: erase track, erase disc, divide, combine, move, end trim. Parallel remote support, title input via front panel, XLR active balanced inputs/outputs, frequency response 20-20k Hz, S/N ratio: playback 90 dB, record 82 dB. 19x3.5x9.9 inches.

222 New Road
Parsippany, NJ 07054
Phone 201/575-7810; Fax 201/575-2532



Digidesign Pro Tools V.4.0

Pro Tools V.4.0 represents the single most important evolutionary step in Pro Tools development since the introduction of TDM. Supporting Digidesign's new PCI-based Pro Tools III hardware and utilizing native PowerPC programming language, Pro Tools 4.0 achieves new standards of performance in operational speed and new creative tools. Pro Tools 4.0 also provides a host of new mixing automation features, including mute automation, dynamic automation of TDM Plug-ins and separate Touch, Write and Latch modes. List price: Pro Tools III Core System (includes Pro Tools 4.0 software) \$7,995, PCI Version: \$6,995 NuBus Version. 3401-A Hillview Ave. Palo Alto, CA 94304 Phone 415/842-7900; Fax 415/842-7999 E-mail prodinfo@digidesign.com Web site <http://www.digidesign.com>

Dolby Labs Dolby Drive

Dolby Drive, an all-digital replacement for the classic 35mm mag film soundtrack dubber, comprises compact 8-track recorders and 16-track players using removable 1GB magnetic disks that can store more than 45 minutes of 8-track audio at 20-bit resolution. Dolby Drive units can replace and/or work alongside existing mag film dubbers and feature individual track slipping and seamless audio monitoring during punch-in/punch-out across eight tracks. 100 Potrero Ave. San Francisco, CA 94103 Phone 415/558-0200; Fax 415/863-1373 E-mail info@dolby.com Web site <http://www.dolby.com>

E-mu Darwin DSP Option Card

Darwin's new DSP option uses 32-bit floating-point technology to provide high-quality pitch transposition, time compression/expansion and precise control of gain and fades. The DSP option can be installed into any Darwins already in the field or ordered as an option for a new system. Open architecture will allow additional DSP features to be added later. 1600 Green Hills Rd. Scotts Valley, CA 95067 Phone 408/438-1921; Fax 408/438-8612 Web site <http://www.emu.com>

Fairlight Digital Audio Dubber

DaD is Fairlight's Digital Audio Dubber, designed to replace magnetic tape audio dubbers for mixdown of feature films, television and music productions. It provides up to 24 channels per unit, with up to 24 units connected to a single remote control. The system includes two integral components: an FC100 controller and an FD24 audio dubber (host for the CPU and storage). The dubber synchronizes to timecode at any frame rate in forward and reverse. The file formats are compatible with MF3. Price: under \$1,000 per track.

Fairlight F.A.M.E.

F.A.M.E. stands for Fairlight Audio Mixer Editor, an integrated system for audio production. It combines the functions of a 24-track MF3 recorder, a digital audio work-

station with full graphical editing and a fully automated digital mixer with total recall (including patches). F.A.M.E. is suitable for surround sound mixing, ADR and Foley recording, advertising post-production and music track layering. The console surface has moving faders, assignable EQ, Aux and Dynamics modules and a powerful touch-screen interface.

3855 Hughes Ave., 2nd Fl.
Culver City, CA 90232
Phone 310/287-1400; Fax 310/287-0200
Web site <http://www.Fairlightsp.com>

Fast Forward Video Omega

Digital video replacement for your broadcast analog tape deck. Upgrade to broadcast-quality digital video while preserving your current edit suite investment. Omega delivers all the advantages of random-access, nonlinear editing with the same controls as your existing analog tape decks. Omega Deck™: Single-channel digital video recorder, \$6,995. Omega Double Deck™: Two independent channels in the same chassis, \$10,995. Omega Raid Deck™: Dual-channel DVR with built-in RAID, \$13,995. 18200 W. McDurrott Irvine, CA 92614 Phone 714/852-8404; Fax 714/852-1226

Fidelipac DCR 1000 Digital Cart Machine

The DCR 1000 Digital Cart Machine has been redesigned as a Record-Play single unit. This reduced-cost version, offered with either the magneto-optical or 2MB drive, features the simple user interface and production features found in the DCR1000 Series. The MO drive provides over five hours of recording time per disk. The 2MB drive uses HD floppies for recording of spots, IDs, PSAs and jingles. Box 808 Moorestown, NJ 08057 Phone 609/235-3900; Fax 609/235-7779



HNB Communications Portadat PDR 1000TC

Model extends the timecode capabilities of the PDR 1000TC, answering the need for extremely accurate jam synching with timecode film cameras, ensuring that the drift will not be more than 1 frame in ten hours. An important new feature of the Portadat TC/Master Sync includes pull up at the 29.97 fps drop to 30 fps drop via a single switch. Plus the new model is compatible with all Aaton cameras and features a standard LEMO socket for direct connection to the film camera. LEDs indicate operational status of the 30 fps drop, and the Jam Sync switch is accessible on the front of the unit. 43 Deerfield Rd. Portland, ME 04101 Phone 207/773-2424; Fax 207/773-2224 E-mail 75671.3316@compuserve.com

Maxell CD-R Discs

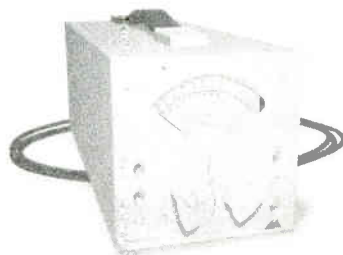
Maxell CD-R discs are ideally suited for 2x and 4x speed recorders (which account for the vast majority of the current installed base). After recording, they can be read by any speed CD-ROM drive or audio CO player that con-

—LISTING CONTINUED ON NEXT PAGE

AIR ROOM DEPTH IMAGING RESOLUTION

Martech Ear Chart

The problem is not your ears. It's your mic preamp, and Martech has developed a stunning solution:



MARTECH MSS-10 MICROPHONE PREAMPLIFIER

- Proprietary, high resolution, all discrete operational amplifiers.
- Custom designed input transformer.
- Large VU meter, insert and level controls to get you straight to tape with ease.
- Find out what you've been missing in your audio. Plug in an MSS-10 and discover what engineering should have always been about.

Call (800) 582-3555 for details and ask about our limited time 60-day money-back guarantee!



A Martinsound Company
1151 W. Valley Blvd.
Alhambra, CA 91803-2493
(818) 281-3555
FAX: (818) 284-3092

USE READER SERVICE CARD FOR MORE INFO

• AES NEW PRODUCTS GUIDE 1998

—LISTING CONTINUED FROM PREVIOUS PAGE

forms to Yellow Book standards. Maxell CD-R discs correspond with Orange Book Part II standards in their unrecorded form and Yellow Book standards after recording. List: CDR-74H, \$8.99; CDR-63H, \$8.49. 22-08 Route 208
Fair Lawn, NJ 07410
Phone 201/794-5900; Fax 201/796-8790



MediaFORM SR-4400 and CD-2510

MediaFORM offers a complete line of manual and automated CD-R duplication equipment. The SR4400 CD Pro is a four-bay manual enclosure. Units can be linked to duplicate up to 40 CDs at 4x speed; has DAT to CD-R capabilities. MediaFORM will also show CD2500 Mac and PC-based autoloader. Utilizing a hopper design, the system duplicates up to 25 CD-Rs, supported by Toast DA and Red Rooster software. The CD2510 Standalone Duplicator automatically duplicates 25 CDs unattended. 400 Eagleview Blvd.
Exton, PA 19341
Phone 610/458-9200; Fax 610/458-9554
E-mail info@mediaform.com

Merging Technologies Pyramix

The Pyramix Virtual Studio from Merging Technologies is a PC-based digital audio workstation that combines digital audio mixing, hard disk recording and editing, digital effects processing and CD-R mastering. Pyramix runs under Windows 95 or Windows NT and supports direct ADAT, S/PDIF and TDIF I/O and the OMF interchange standard. 11440 W. Bernardo Ct., Ste. 250
San Diego, CA 92127
Phone 619/675-9703; Fax 619/675-2247
E-mail info@merging.com
Web site <http://www.merging.com>

Metalithic Digital Wings for Audio

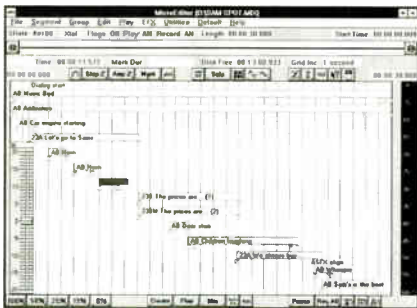
Digital Wings™ for Audio is a Windows 95-based, complete hard disk recording system: hardware, software and optional breakout box. A recording studio on a board, it delivers 128 tracks with simultaneous playback, non-destructive editing and a suite of state-of-the-art effects. Specs: >90dB S/N ratio, frequency response 20-20k Hz (± 1 dB), THD @ +4dbm <0.01%. Digital Wings for Audio with Way Cool Edit: \$1,695. Digital Wings for Audio with Way Cool Edit and Breakout Box: \$1,995. 3 Harbor Dr., Ste. 206
Sausalito, CA 94965
Phone 415/332-2690; Fax 415/332-6735
E-mail info@metalithic.com
Web site <http://www.metalithic.com>



Microboards CD Maker

The CD Maker system is a CD-R creation/duplication station that develops Red Book audio/disc-at-once/glass-master ready and CD-R discs and is capable of burning up to 16 discs simultaneously. The CD Maker is extremely user-friendly and able to interface to both Windows- and Mac-based audio editing systems, including Digidesign, SADiE and others. Applications include single-track disc creation for distribution, DAT conversion to CD-R and audio premastering.

1480 Park Rd., Ste. B
Chanhassen, MN 55317
Phone 612/470-1848 or 800/646-8881; Fax 612/470-1805
Web site <http://www.microboards.com>



MTU MicroSound Krystal Workstation

MicroSound Krystal™ delivers pro-quality 24-bit precision that is fully expandable to 16 tracks analog and digital I/O. Onboard I/O includes 24-bit transformer-coupled digital AES/EBU and S/PDIF, 16-bit 64x stereo A/D/A, MIDI I/O, SMPTE I/O and word clock. External I/O includes 2 to 16 channels 24-bit A/D and 20-bit D/A at 8-96 kHz with +24dBu option, 8 or 16 tracks 24-bit digital AES/EBU and 8 to 16 channels 16-bit A/D/A for home studios. Krystal is a PCI-bus DSP engine for MicroSound Professional DAWs that runs MicroEditor 2.6 software mixing up to 128 tracks. With MicroEditor, Krystal 1200 is \$1,999; Krystal 2400 is \$2,999. 6900 Six Forks Rd.
Raleigh, NC 27615-6427
Phone 919/870-0344; Fax 919/870-7163
E-mail info@mtu.com
Web site <http://www.mtu.com>

Nagra Nagra-D Series 2000

Leading the move to high-resolution recording with the original 24-bit Nagra-D portable 4-track location recorder, Nagra introduces the Nagra-D Series 2000 with 24-bit/96kHz recording capability. Developed in partnership with dCS Ltd., the first high-resolution recording platform able to meet the requirements of future-enhanced digital audio media delivers sustained S/N greater than 108 dB, unmatched linearity to -130 dB and the industry's lowest jitter performance. The Nagra/dCS combination offers the highest recording quality currently available. 240 Great Circle Rd., Ste. 326
Nashville, TN 37228
Phone 615/726-5191; Fax 615/726-5189

E-mail nagra@nashville.net
Web site <http://www.nagra@nashville.net>

Otari DTR8-S DAT

The DTR8-S is Otari's newest professional DAT machine, incorporating all the features from the previous DTR8, such as balanced I/O on XLR connectors, AES and S/PDIF digital input and output and high-quality 1-bit audio conversion—all in a rugged 19" rackmount enclosure. Otari has added the ability for the user to monitor input signal without the need to engage record. The DTR8-S is \$1,495. 378 Vintage Park Dr.
Foster City, CA 94404-1134
Phone 415/341-5900; Fax 415/341-7200

SADiE Version 3

SADiE Version 3 is the newest free upgrade for SADiE owners. Features include background recording/archiving; waveform and scrub editing in the playlist; read and record in different file formats; unlimited virtual tracks; and clip-based automation of level, pan, EQ and dynamics. Optional software plug-ins include CEDAR De-Noise and Synchro-Arts VocAlign.

SADiE Octavia Modular Digital Editing

Octavia, the newest product from Studio Audio and Video, features an 8-I/O expandable architecture (analog and digital) and incorporates four AT&T DSP3210 32-bit floating-point processors, 20-bit A/D-D/A converters, 24 internal tracks, unlimited virtual tracks, VITC and LTC support and a set of customized hardware control panels. Octavia runs on SADiE Version 3 software and is fully Windows 95-compatible. A complete system starts at \$29,995. 1808 West End Ave., Ste. 1119
Nashville, TN 37203
Phone 615/327-1140; Fax 615/327-1699
E-Mail 100566.132@compuserve.com
Web site <http://www.sadie.com>

Sharp XA-620 VHS HiFi VCR

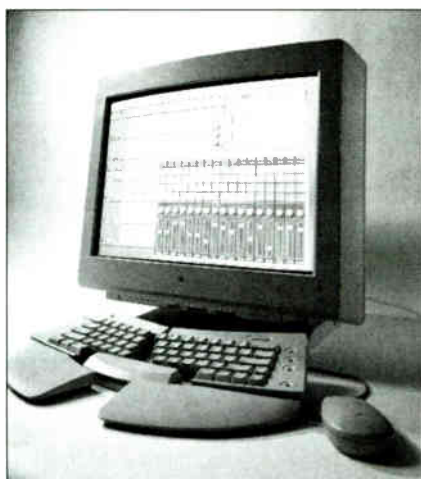
VHS HiFi 4-head VCR incorporates improved record/playback quality, shuttle control, universal remote, VHS HiFi (Stereo/MTS sound), end-of-video auto repeat function (for continuous playback applications) and BNC video connectors. For tape duplication use, the XA-610 has wired remote pause in/out jacks and a record protection override switch. List: \$550. Sharp Plaza, Mail Stop One
Mahwah, NJ 07430-2135
Phone 201/529-8731; Fax 201/529-9636
E-mail ProLCD@SharpSEC.com
Web site <http://www.SharpSEC.com>

Simon Systems Digital Message Repeaters

The SAM family of message repeaters digitally records sound and control information directly to nonvolatile, solid-state memory. There is no tape or moving parts to wear out. The design allows direct transfer of information between units. The Mini-SAM is an inexpensive scaled-down version of the SAM 8M. The SAM is perfect for museums, theme parks, attractions, P.A. and robotics. 707 Clear Haven Drive
Agoura Hills, CA 91301
Phone 818/707-9980; Fax 818/707-0465
E-mail ske@mail.earthlink.net

Sonic Solutions SonicStudio Master

SonicStudio Master™ redefines the high end of audio mastering with significant new capabilities: 96kHz high-density audio support; integration of the new DDP 2.0 mastering format; PQ verify, read and rewrite; and DDP playback and DDP loadback. This new system provides mastering engineers with the tools they need to produce the high-quality work their customers demand—sample-accurate editing, infinitely variable crossfades, high-resolution filtering, noise-shaped dithering and complete control of CD subcode data.



Sonic Solutions SonicStudio Post

SonicStudio Post™ provides post facilities with master-quality recording, editing and multitrack mixing and production. It includes 24-bit resolution, up to 96 channels of I/O, real-time crossfades and automated mixing. SonicStudio Post is designed to work in nonlinear digital video and film production environments for both on-line and off-line applications. Industry-standard file-format support is included for QuickTime™ AIFF and CMX as well as OMFI import and export.

101 Rowland Way
Novato, CA 94945
Phone 415/893-8000; Fax 415/893-8008
Web site <http://www.sonic.com>

Sony MDM-X4 Multitrack MD Recorder

The MDM-X4 utilizes the MD-DATA format, as well as Sony's advanced ATRAC technology, to offer 4-channel recording and playback (up to 37 minutes per track). Editing features include full song-based editing and a Track Edit feature for various digital editing between tracks or as part of a track. Featured are a jog/shuttle wheel; ±8.8% varispeed; and MIDI Machine Control and MIDI Time Code for synchronizing to other MIDI devices. The MDM-X4 has four mic/line inputs, two aux returns, two aux sends and one stereo input.

Sony PCM-3348HR 48-Track

The PCM-3348HR provides 48 channels of 24-bit digital audio recording using standard 1/2-inch tape. Versatile audio interfaces are provided, including 48 channels of 20-bit oversampling A/D and D/A converters, 48 channels of MADI digital I/O and 8 channels of AES/EBU I/O. When operated in its 16-bit mode, the PCM-3348HR is fully record-and-play-compatible with all current DASH recorders. The unit is equipped with a 9-pin serial remote connector for external machine control and can record up to 46 minutes on a 14-inch reel.

3 Paragon Dr.
Montvale, NJ 07645
Phone 800/635-SONY; Fax 201/358-4907

Soundscape SSHDR1

The SSHDR1 is an 8-track, PC-based hard disk recording/editing system that comes complete with digital/analog I/O (crystal), full MIDI implementation in a 2U piece. Fully expandable to 128 tracks with options for pitch shift/time stretch/reverb and 8 ins and outs, the base unit retails for \$3,250.

4478 Market St., Ste. 704
Ventura, CA 93003
Phone 805/658-7375; Fax 805/658-6395
E-mail 74774.1337@compuserve.com

Spectral Turnkey System

This new system is for radio production, ENG, news editing, commercial productions, etc., featuring Express software. It is an easy-to-learn interface with no menus, and everything you need is on one intuitive screen free from "computer-ese." It provides 8 tracks of simultaneous record and playback and includes computer system, monitor, drives, Prisma™ card, 2-channel analog I/O and software—all installed and tested for proper performance.

18800 142nd St. Ave. N.E., Ste. 4-A
Woodinville, WA 98072
Phone 206/487-2931; Fax 206/487-3431
Web site <http://www.spectralinc.com>



Studer D424-2 Stereo MO Recorder

The D424-2 features familiar tape deck controls with non-destructive editing and selectable 16/20/24-bit linear recording formats. The 424-2 has a digital scrub capability and serial control option, timecode reader and generator, AES/EBU and S/PDIF inputs and 20-bit A/D-D/A converters. Designed to replace high-end DAT recorders, its removable 5.25" high-density MO discs offer over an hour of uncompressed audio on a standard ISO 1.3/2.6GB cartridge. Network capabilities aid transfer from servers and workstations; its audio file and EDL formats are plug-and-play compatible with SADIe workstations.

Studer D827-MCH MKII Multitrack

Studer's fourth generation 24/48-track DASH-format recorder features a new autolocator, 20-bit A/D-D/A converters, an improved tape transport, standard 24-bit EDR (Extended Digital Resolution) capability, 180-second on-board sampler with edit-track slip and track-bounce features, MADI and AES/EBU interfaces and remote ports. The modular System Core allows for ideally meeting the user's requirements. Field-upgradeable from 24 to 48 tracks, the D827-MCH MKII offers total DASH compatibility. The highest-quality Noise Shaping Technology (NST™) is incorporated for best sound quality.

1865 Air Lane Dr.
Nashville, TN 37210
Phone 615/391-3399; Fax 615/391-5974



Superscope Marantz PMD350

Marantz Professional PMD350 Combination CD Player/Cassette Deck. Features pitch control on both CD and cassette, independent outputs and mix output, digital output, fader start, microphone inputs, headphone selector and A-B memo points.

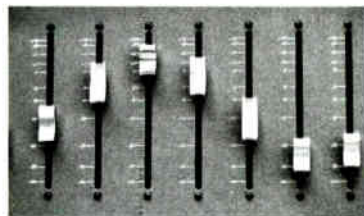
Superscope Marantz CDR615

Marantz Professional CDR615 Compact Disc Recorder features built-in sample-rate converter and DAT subcode converter and complete Red and Orange Book compatibility. 1000 Corporate Blvd., Suite D
Aurora, IL 60504
Phone 630/820-4800; Fax 630/820-8103

THE MOST COST-EFFECTIVE MOVING FADER SYSTEM.

**AUDIOMATE:
32 CHANNELS OF
MOVING FADER
AUTOMATION
FOR UNDER \$20K.**

- 80 ms top to bottom speed, 1,024 steps, 10-bit resolution.
- Easy retrofit on most consoles.
- Macintosh® based, so it's easy to learn.
- Compares favorably to automation packages costing 3 times as much.



**Call (800) 582-3555 for
details or visit our web site,
www.martinsound.com**



Breaking the price barrier.

Exclusive U.S. Distributor:
Martinsound, Inc.
1151 W. Valley Blvd.
Alhambra, CA 91803-2493
(818) 281-3555
FAX: (818) 284-3092

USE READER SERVICE CARD FOR MORE INFO



Tascam 564 Digital Portastudio

The 564 Digital Portastudio combines the operational ease of the Portastudio line with digital audio quality afforded by the use of the MD Data MiniDisc format. The MD Data format provides 37 minutes of 4-track digital recording and offers random access functionality, including instantaneous locate, divide, combine and move capability. The 564 supports frame-accurate jog capability for precision search and cueing and has a digital output (S/PDIF) for mastering to 2-track in the digital domain. 7733 Telegraph Rd. Montebello, CA 90640 Phone 213/726-0303; Fax 213/727-7635



Vestax HDRV8

The HDRV8 is an 8-in, 8-out digital hard disk recorder at a price that is unparalleled in the industry. New menus, user-friendly, with optional ADAT, TDIF interfaces that make the HDRV8 the ultimate satellite for any studio. 2870 Cordelia Rd., Ste. 100 Fairfield, CA 94585 Phone 707/427-1920; Fax 707/427-2023 Web site vestaxusa@vestax.com



Yamaha MD4 Multitrack MD Recorder

The MD4 is the first multitrack recorder to use the Mini-Disc format and offers superb audio quality, portability and removable disc, all at an unprecedented price point of approximately \$1,199. Designed for musicians, the compact MD4 is extremely easy to use and offers powerful nonlinear program editing functions. MIDI Time Code output and unlimited track bouncing with negligible signal degradation. Full mixing functions are built-in. 6600 Orangethorpe Ave. Buena Park, CA 90622-6600 Phone 714/522-9011; Fax 714/739-2680 E-mail Info@Yamaha.com Web site http://www.Yamaha.com



Acoustic Control Processors

A series of signal processors designed for project and professional situations, including the T-Series 15- and 31-band EQs and the VC03 electronic crossover. Equalizer specs exceed those required by national touring acts, featuring a Turbo Circuit for EQ enhancement and a sub-woofer output, allowing bi-amping without a dedicated crossover. The VC03 features overlapping midfrequencies, +24dB gain, Linkwitz-Riley Filters and 24dB/octave slopes. A division of Samick Music 18541 Railroad St. City of Industry, CA 91748 Phone 818/964-4700; Fax 818/965-5224 E-mail samickmusic@earthlink.net Web site http://www.samick_music.com

ADA Ampulator

A guitar amp and miked-cabinet emulator in a single rack-space box. Ampulator provides extensive control for studio or live applications. Amp controls include drive level, presence, tube "bias," hum injection power (0 to 200 watts) and Class (A, B or AB). Mic simulation controls include speaker size (10- or 12-inch), open/closed back, bright or dark speakers, resonance and hi-balance (on/off-axis effects). Inputs and outputs are balanced or unbalanced. 420 Lesser St. Oakland, CA 94601 Phone 510/532-1152; Fax 510/532-1641 E-mail sales@adasignal.com Web site http://www.adasignal.com

Alesis NanoVerb

We packed 18 of our best-sounding, most usable effects into the NanoVerb™ 18-bit digital effects processor, a compact one-third-rack package. NanoVerb offers plates, rooms, halls, chorus, flange, delay and rotary speaker effects—all adjustable via a single front-panel knob. Retail: \$179. 3630 Holdredge Avenue Los Angeles, CA 90016 Phone 310/841-2272 E-mail alecorp@alesis1.usa.com

Amek System 9098 Dual Compressor-Limiter

The System 9098 Dual Compressor-Limiter by Rupert Neve develops the characteristics found in Rupert's much sought-after 2254 unit of the 1970s. The device has two channels linkable for stereo operation. The purest analog signal path is now enhanced by a digital control system, allowing parameters to be set with great precision and repeatability. An Ambience control allows suppression of intrusive or unwanted reverberation fields. U.S. list: approximately \$2,500. 10815 Burbank Blvd. North Hollywood, CA 91601 Phone 818/508-9788; Fax 818/508-8619 E-mail amek@console-city.com

Aphex Model 109 Tube EQ

The Model 109 combines studio-quality Aphex-engineered equalization with the company's patented Tubessence™ true vacuum tube circuitry. The 109 includes a unique mode switch offering either dual (stereo) or mono 4-band equalizer configurations in the same unit. This feature offers the user more flexibility for adapting the unit from "general sweetening" to critical problem solving. Unit can be operated in the EQ bypass mode yet still pass signal through the Tubessence vacuum tube stage. 11068 Randall St. Sun Valley, CA 91352 Phone 818/767-2929; Fax 818/767-2641

API 225L Compressor

The 225L is the second outboard module designed for the Legacy console and the L200 rack system. It is a circuit copy of the original API 525 compressor. It has been repackaged into the L200 format. 7655-G Fullerton Rd. Springfield, VA 2153 Phone 703/455-8188; Fax 703/455-4240

Apogee Electronics FC-8 Format Converter

The Apogee FC-8 is a low-cost, stand-alone, bidirectional converter providing simple, rapid conversion between the two most common modular digital multitrack formats—ADAT Optical and TDIF (DA-88). The unit allows Apogee's AD-1000 20-bit A/D converter to be utilized with Tascam and compatible recorders while offering a self-contained conversion solution. 3145 Donald Douglas Loop S. Santa Monica, CA 90405 Phone 310/915-1000; Fax 310/391-6262 E-mail info@apogeedigital.com Web site http://www.apogeedigital.com



ART Dual Leveler

Applied Research and Technology's Dual Leveler is a single-rackspace, 2-channel leveling amplifier offering stereo or dual-channel mono operation. The Dual Leveler utilizes electro-optical (Vactrol[®]) and vacuum tubes (two 12AX7A) in its VCA-less design for premium performance. Features include compression or limiting settings, adjustable threshold and output controls and gain reduction metering. Attack and release characteristics are adjustable: "Fast" for punchy, transparent character and "Auto" for a smooth, loud and fat sound. MSRP: \$339.



ART FX-1

The FX-1 is ART's latest Personal Effects Processor. Housed in a compact, all-steel chassis are two bands of 30 single and multi-effect algorithm chains. With ART's exclusive "More" feature, every program can be enhanced with more of just the right effect instantly. Choose from standard reverb algorithms, true stereo rooms and plates or special multi-effects. Dual-mono processing allows processing two individual channels with totally separate effects. THD: <0.05%; Dynamic range: >90 dB; MSRP: \$159. 215 Tremont St. Rochester, NY 14608 Phone 716/436-2720; Fax 716/436-3942 E-mail artroch@aol.com or artroch@cis.compuserve.com Web site http://www.artroch.com

ARX Anti Feedback Workstation

The trouble with feedback eliminators is that's all they do—you still need to EQ the system and stop excessive levels. The AFW-1 is a unique signal processor with a 30-band EQ, Sabine FBX Feedback Exterminator, plus a peak limiter, all in a neat two-rackspace package. Balanced in/out on ¼ jacks and XLR connectors. If it's got a microphone and a speaker, it needs an AFW-1. Total control in one unit.

ARX 8-Channel Compressor/Limiter

Eight individual compressors plus a global limiter in a 1U package. Aimed at the modular digital 8-track project studio. Extremely user-friendly interface: The ULTM-8 is designed for musicians who don't want to be technicians. Transient Retention™ circuitry retains high-frequency clarity. Balanced in/out on ¼" TRS connectors.

4411 Brookford Ave.
Woodland Hills, CA 91364
Phone 818/225-1809; Fax 818/225-1309

Audio Centron GE231 EQ

This dual 31-band EQ from Audio Centron offers true flat phase response with no coloration to speaker systems. Two control ranges make for greater accuracy in adjusting the audio spectrum. This unit features a low-noise design with constant Q filters, ISO frequencies, gain level slider, ±6 or ±12dB boost/cut, bypass switch, peak LED, signal LED, variable input level and variable highpass filter, with balanced XLR and ¼" TRS inputs/outputs.

1400 Ferguson Ave.
St. Louis, MO 63133
Phone 314/727-4512; Fax 314/727-8929

BBE DI-100

The BBE DI-100 Active Direct Box with Sonic Maximizer is a 2-channel active direct box with signal processing. Features include built-in BBE Sonic Maximizer with independent process and Lo-Contour controls; a function switch for comparing the BBE-processed signal to the unprocessed signal; ¼" phone jacks for signal insertion; input pad for instrument or line-level signals; and a ground lift switch.



BBE 262 Sonic Maximizer

The BBE 262 Sonic Maximizer is a versatile 2-channel signal processor that features independent Process and Lo-Contour controls to accommodate mono or stereo configurations; a function switch for comparing the BBE-processed signal to the unprocessed signal; and ¼" phone jacks for easy unbalanced connection into any sound system.

5381 Production Dr.
Huntington Beach, CA 92649
Phone 714/897-6766; Fax 714/896-0736



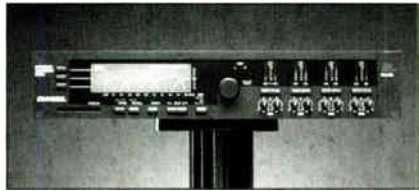
Bellari Stereo Tube Sonic Exciter

The RP562 Stereo Tube Sonic Exciter is designed to bring clarity, life and brilliance to live or recorded material. Low and high frequencies are controlled via Bottom and Definition controls. The unit has a frequency divider that separates the subwoofer frequencies and provides for mono subwoofer control. This frequency is variable between 35 and 200 Hz; the subwoofer output level is also adjustable. Retail is \$400.

5143 S. Main St.
Salt Lake City, UT 84107
Phone 801/263-9053; Fax 801/263-9068
E-mail eric@rolls.com
Web site <http://www.xmission.com/~rollsfx>

BSS Omnidrive Install

Omnidrive Install takes all the Loudspeaker Management processing of stereo 4-way crossover, time correction delay, parametric EQ and limiting and puts it in a frame for studio and installations requiring security. Programming is achieved by MIDI dump from Omnidrive, PCCARD or computer control via SoundBench™ software. The digital unit features over 105dB S/N.



BSS All Digital Omnidrive

Omnidrive processing featuring AES/EBU digital inputs and outputs.

1449 Donelson Pike, Ste. 12
Nashville, TN 37217
Phone 818/227-1800; Fax 818/884-2974
E-mail pfreuden@harman.com

Canorus dCS 902D ADC

24-bit studio reference-quality recording and mastering ADC sampling at 88.2/96 kHz, with AES/EBU, S/PDIF and SDIF-2 interfaces. Proprietary discrete-component, 5-bit, oversampling, non-gain-ranged converter delivers a S/N of 108 dB and linearity to -130 dB. Crystal VCXOs with dual-bandwidth PLL deliver exceptionally jitter-free performance: ±10 ppm. Selectable truncation via back panel switches or optional Windows™ remote software and cable. Dual-voltage operation, 19" rackmount case. \$8,500.

Canorus dCS 952

24-bit studio reference-quality monitoring and mastering DAC sampling from 32-96 kHz, with AES/EBU, S/PDIF and SDIF-2 inputs. Proprietary discrete-component, 5-bit, oversampling, non-gain-ranged converter delivers a S/N of 110 dB and linearity to -130 dB. Crystal VCXOs with dual-bandwidth PLL deliver exceptionally jitter-free performance: ±10 ppm. Outputs are fully balanced and electronically floated. Unbalanced audio and SDIF-2 word clock outputs are standard. Optional Windows™ remote software and cable allows truncation from 1-bit to 24-bits in 1-bit precision increments, 1st/3rd/9th-order noise shaping and temperature monitoring. \$8,500.

3 Jay Lane
Acton, MA 01730-5754
Phone 508/268-2111; Fax 508/263-2282
E-mail info@canorus.com
Web site <http://www.canorus.com>

Crane Song Ltd. HEDD

HEDD (Harmonically Enhanced Digital Device) is a 1-rack-space digital signal processor with analog and 20-bit digital I/O. The HEDD process provides real-time harmonic enhancement to create tube-like sounds in the digital domain.

2117 E. 5th St.
Superior, WI 54880
Phone 715/398-3627; Fax 715/398-3279

Anthony DeMaria Labs Tube Direct Box

The 200+G stereo tube direct box improves on the original model 200 with an all-new, 3-tube design, better specs and 30dB/ch gain controls. Features ¼-inch and XLR outputs and a half-rack design allowing two units to be bolted together for 4-channel operation.

95 DuBois Rd.
New Paltz, NY 12561
Phone 914/256-0032; fax 914/255-3202

Dealers come
& Dealers go...
**One Pro
Audio
Company**
has been
tops for
40 years
and going
strong.
*Put our strength
to work for you.*

Leo's
San Francisco • Oakland
V:415-775-1316 F:673-8663
V:510-652-1553 F:652-6575

USE READER SERVICE CARD FOR MORE INFO

Let's Get Real!

Introducing To North & South America
The Newest Real Time 10 Pocket
Cassette Recorder/Duplicator.
In Use In Japan Since 1987

Call For Price!



- Produce Up To 10 Original Stereo Master Cassettes From Any Line Source, I.E., CD'S, Dat, Mixing Console, Etc.
- Duplicate Up To 9 Cassettes From A Single Cassette Master
- Auto Bias Sensing Chrome/Normal
- Studio/Field Applications
- 10 Pocket Slaves Available

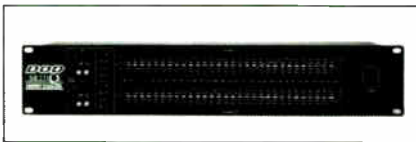
Distributed By:

NOW! Recording Systems

32 West 39th St. 9th Fl., New York, NY 10018
(212) 768-7800 (800) 859-3579 Fax (212) 768-9740

DOD SR830Q Constant-Q EQ

The SR830Q offers two channels of 15-band, 1/2-octave equalization. This full-feature unit includes 1/2 balanced/unbalanced inputs, electronically switched low-cut and bypass controls with LED indicators. Center detented pots with 12 dB of boost or cut, configured on standard 1/2-octave ISO centers, handle all equalization requirements. The SR830Q is available with balanced optional XLR connectors. Specs: frequency response: 20-20k Hz ±0/-0.5 dB; THD: 0.003% at 1 kHz typical; S/N: greater than 90 dB.



OOD SR231Q Constant-Q EQ

The SR231Q offers 12 dB of cut or boost per band and switchable low-cut filters for each channel. Electronic filter switching minimizes transients. Constant Q provides constant bandwidth from each filter throughout the full audio spectrum. The SR231Q can be used as a stereo equalizer or as two independent channels of EQ. Connections may be high or low impedance, balanced or unbalanced; XLR connectors available as a factory option. Specs: frequency response: 20-20k Hz ±0/-0.5 dB; THD: 0.004% at 1 kHz typical; S/N: greater than 90 dB. 8760 S. Sandy Pkwy. Sandy, UT 84070 Phone 801/866-8800; Fax 801/566-7005 Web site <http://www.dod.com>

Empirical Labs Distressor

The Distressor is a classic knee compressor that incorporates 2nd- and 3rd-order harmonic distortion to emulate tape saturation and the tonal characteristics and warmth normally associated with tubes. Classic analog compressors of the '60s and '70s can also be emulated. Digital controls and high-resolution numbered knobs allow for precise settings that are easily recalled. Frequency response: 5 Hz to 160 kHz, I-O, -3 dB. Dynamic range: 110 dB in 1:1 mode. List: \$1,499. 10 Schley St. Garfield, NJ 07026 Phone 201/478-3522; Fax 201/728-2931 E-mail DDerr77961@aol.com Web site <http://haven.ios.com/~nextwave/>

Esoteric Sound Surface Noise Reducer

The Surface Noise Reducer is a stereo-level device designed for the removal or reduction of clicks and pops from disc record sources. It can be used with LP records, 78 rpm or other vintage records, such as broadcast transcriptions. It is designed for audiophiles, record collectors or professionals. 4813 Wall Bank Ave. Downers Grove, IL 60515 Phone 630/960-9137; Fax 630/960-9137



Galaxy Model 451

The Model 451 GateX 4-Channel Expander/Gate offers ultralow distortion and wide dynamic range. It controls track leakage, enhances dynamic range, controls reverb decay times, quiets effects leads, eliminates breathing and lip smacks in vocals and provides superior buzz and hum control for recording and live performance. 601 E. Pawnee Wichita, KS 67211 Phone 316/263-2852; Fax 316/263-0642

GML Digital Noise Filter

The GML Digital Noise Filter is a stand-alone hardware product comprising a processor and a control head (desktop controller with eight linear controls and I/O switch). This 2-channel digital I/O unit is intended for the selective removal of low- to medium-level noise artifacts. Eight controls tailor the threshold for each of eight bands, from -96 dB to 0 dB, with bicolor LEDs indicating whether each band is active. Developed jointly with the Walt Disney Company and intended for film production (removing noise from archival sources), DNF has applications in many areas of post and music production. 7821 Burnet Ave. Van Nuys, CA 91405 Phone 818/781-1022; Fax 818/781-3828 Web site <http://www.gml.netcom.com>

Kurzweil DMTi

DMTi is a 1U unit used as a stand-alone digital signal converter, digital patchbay, or for interfacing Kurzweil's K2500 Series production stations (proprietary KDS format) to MDMs produced by Tascam, Alesis, Fostex and others. The DMTi interfaces between ADAT or TDIF and AES/EBU or S/PDIF digital formats. The DMTi can perform real-time sample rate conversion on up to four stereo pairs of incoming digital data while acting as the master or slave clock. DMTi can also interface with digital mixers such as Yamaha's Q2R or Korg's SoundLink. 13336 Alondra Blvd. Cerritos, CA 90703-2245 Phone 310/926-3200; Fax 310/404-0748 E-mail kurzweil@aol.com Web site <http://www.youngchang.com/kurzweil>

Leitch 20-Bit AES Converters

Available in balanced and co-ax versions, these converters offer D/A and A/D audio conversion. They can be housed in the same frames as Digital Glue® products allowing digital video and audio in the same frame or used in existing audio distribution amplifier frames. The converters feature flat frequency response from 20-20k Hz, excellent linearity, signal-to-noise specifications and dual outputs, eliminating the need for DAs after conversion.

Leitch AES/EBU DAs

The AES/EBU digital distribution amplifiers are differential input, 8-output units featuring cable equalization, data reclocking and contact closure output for remote error indication. Equalization and reclocking provide the ability to compensate for cable lengths exceeding 5,000 feet. Card-edge LED error indicators provide a quick, accurate assessment of the incoming signal integrity. These DAs can be housed in the same frames as Digital Glue® products or used in existing audio DA frames. 920 Corporate Lane Chesapeake, VA 23320 Phone 800/231-9673; Fax 757/548-4088 Web site <http://www.leitch.com>



Lexicon MPX 1

The Lexicon MPX 1 multi-effects processor features two independent microprocessors. Lexicon's proprietary Lexichip II for uncompromised reverb and a separate DSP chip for simultaneous effects. Access is provided via a totally new user-intuitive interface that provides unprecedented control. The MPX 1 features 200 factory programs, 50 user programs; five effects blocks including pitch, chorus, EQ, delay, modulation and reverb; and a unique Library

Sort, Search and Show function that allows exclusive database search and sorting functions with multiple search criteria. List: \$1,299. 100 Beaver St. Waltham, MA 02154 Phone 617/736-0300; Fax 617/891-0340 E-mail 71333.434@compuserve.com

Lucid Technology 20-bit ADC/DAC

The Lucid Technology™ ADA 1000 is a 20-bit A/D and D/A converter with AES/EBU and S/PDIF digital connectors. Supports 32/44.1/48kHz sampling rates. Retail is \$599. PO Box 1583 Edmonds, WA 98020 Phone 206/742-1518; Fax 208/742-0564 Web site <http://www.LucidTechnology.com>

OmniSound SSP-300

The SSP-300 Cinema OmniSound Processor is a multi-channel audio signal panner for cinema/video post-production. Omnisound's algorithms provide optimal sound distribution for all surround sound formats, including Dolby Stereo, Dolby Digital, AC-3, DTS, SDDS, Omnimax and IMAX PSE. One SSP-300 remote unit controls up to 15 processors. The SSP-300 records and plays back all movements, as well as level, divergence and stereo width in SMPTE lock. 1368 Lincoln Ave., Ste. 108 San Rafael, CA 94901 Phone 415/457-8114; Fax 415/457-6250 E-mail Sales@omnisound.com Web site <http://www.omnisound.com>

P.A.S.T. Limiter/Compressor

Tailored and built to individual customer specification, the unit is based on the same quality vintage design as the much-used Professional Audio System Technology equalizer and microphone amplifier. Combining the best of 1970s design, construction quality and components with modern technology produces that classic, warm, open sound while improving on technical specifications, reliability and accuracy. Woolsack Barn, 24 Market St. Ely, Cambridgeshire CB7 4LS, England Phone 44/1353-669903; Fax 44/1353-669903



Peavey CEX5

The CEX™5 digital processor comes with five bands of parametric EQ on each input and three bands of parametric EQ on each output for a total of 22 bands of parametric EQ. The crossover has selectable filters and slopes allowing asymmetrical Linkwitz-Riley, Butterworth and Bessel filters with variable slopes of 6, 12, 18 or 48dB/octave. Analog I/O includes 2 inputs/4 outputs and AES/EBU digital I/O. 711 A St. Meridian, MS 39301 Phone 601/483-5376; Fax 601/486-1154 E-mail george_douglas@peavey.e-mail.com Web site <http://www.peavey.com>

Power Technology DSP-FX

State-of-the-art 32-bit floating-point, Windows PC-based digital audio effects processor. A combination hardware/software system runs on Windows 3.1 or better. 32-bit

—LISTING CONTINUED ON NEXT PAGE

[This approximates the amount of noise found in a Topaz console.]



SOUNDTRACS

See us at AES Booth 934.

For more information call (516) 393-8520. Soundtracs products are now fully supported and marketed in the United States by Korg USA, Inc. ©1996 Soundtracs USA.

USE READER SERVICE CARD FOR MORE INFO
World Radio History

• AES NEW PRODUCTS GUIDE 1996

—LISTING CONTINUED FROM PREVIOUS PAGE

floating-point precision, complete visual user interface, completely open-ended, user-upgradable. Prices starting at \$799.

100 Northhill Dr., Bldg. #24
Brisbane, CA 94005
Phone 415/467-7886; Fax 415/467-7386
E-mail dspfx@dspfx.com
Web site <http://www.dspfx.com>

Renkus-Heinz X-Series Controllers

The new X12, X14 and X24 controllers provide a cost-effective alternative to optimizing your system by eliminating the need for separate crossovers, compressors and limiters. These controllers utilize plug-in crossover, EQ/delay and protection modules and preset parametric EQs. All feature our Sense Fail circuitry and incorporate gain reduction circuitry to guard against thermal damage, over-excursion and high transients. Signal (time) alignment is also available on all models.

17191 Armstrong Ave.
Irvine, CA 92614
Phone 714/250-0166; Fax 714/250-1035

RSP Circle Surround 5.2.5 Encoder

RSP Technologies announces the new Circle Surround[®] 5.2.5[™] Encoder, a one-rackspace device providing L-C-R-LS-RS independent channels from a left/right signal that's backwardly compatible to all major matrix systems. Stereo surround channels are full bandwidth. The Encoder accommodates L-C-R-LS-RS +LFE inputs on a sub-D 524 connector that's pin-compatible with DA-88 I/Os so projects prepared for discrete digital release can be directly encoded on the Circle Surround 5.2.5 Encoder. The L/R output is electronically balanced at +4 dBu on XLR connectors. The stereo surround channels decode properly on units that employ only one surround channel. The system has no application or use licensing fee.

RSP Circle Surround 5.2.5 Controller

RSP's 4-joystick L-C-R-LS-RS panner can be used as a stand-alone audio steering unit to a console or multitrack recorder or as a steering controller for the new RSP 5.2.5[™] Circle Surround[®] Encoder. The 5.2.5 Controller consists of a 1U electronics package with all I/Os on DA-88-pinout sub-D connectors and a remote box with the four rugged joysticks. Each joystick has an individual mute switch. All I/Os are balanced, with a nominal +4dBu level. Signal outputs are available for each of the panner outputs, as well as L-C-R-LS-RS summed from the four joysticks. A third output set interfaces directly to the RSP 5.2.5 Encoder.

2870 Technology Dr.
Rochester Hills, MI 48309
Phone 810/853-3055; Fax 810/853-5937
E-mail rocktron@eaglequest.com
Web site <http://www.Rocktron.com/rsp>

Sabine FBX-Solo SL-611/SM-611

Sabine's FBX-Solo automatically detects and eliminates feedback by assigning one of six narrow filters to eliminate only the feedback. Upgrade models include SL-611 with 1/2" in/out connectors and high/low input switch for use with acoustic instruments, patching to insert points or controlling feedback over the entire mix and SM-611, with mic preamp, selectable phantom power and XLR in/out connectors for use with mics. Both offer switchable filter widths. Price: \$299.95 (SL-611), \$349.95 (SM-611).

Sabine FBX-2020

Like its predecessor, the FBX-1802, Sabine's new dual-channel FBX-2020 automatically senses and eliminates feedback in sound systems, providing more gain and clearer sound. The FBX-2020 has improved 20-bit performance, allowing for better dynamic range and signal-to-noise specifications. The 2020 offers several new features: 10 feedback filters per channel, a dynamic filter reset button, automatic clip level adjust and internal power sup-

ply—in addition to standard FBX features.
13301 Highway 441
Alachua, FL 32615-2001
Phone 904/418-2000; Fax 904/418-2001
E-mail sabine@sabineinc.com
Web site <http://www.sabineinc.com>

Soundware A/S SP02

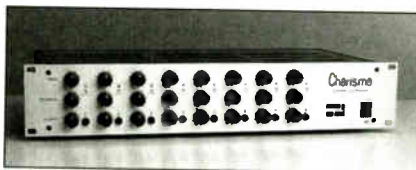
Digital surround panel for the Yamaha 02R. The SP02 enables mixing of 4-channel, 5.1 and 7.1 formats on the 02R. Pan through center with bleed control. Movements of every single channel may be recorded into the mixers automation system. Level is still controlled on the faders. When TC effect processors are used, they may be controlled to create dynamic reverbs or motion effects. Retail: \$2,200 ex. VAT.

Vesterport 8
Aarhus, Denmark 8000C
Phone 45/8613-2400; Fax 45/8613-2406
E-Mail sware@post1.tele.dk

Spatializer Retro

Spatializer[®] Retro[™] provides real-time 3-D audio processing for the project studio. Spatializer Retro turns a console's existing 90° panpots into 270° 3-D positioning controls. Every panpot will locate any mono source in 3-D space, beyond the speakers and around the listener. Using two panpots, the user can control the size of stereo images, wrapping the listener in a 270° stereo surround panorama. The resulting 3-D effect adds a sense of realism to otherwise ordinary sound.

20700 Ventura Blvd., Ste. 134
Woodland Hills, CA 91364
Phone 818/227-3370; Fax 818/227-9750
E-mail retro@spatializer.com
Website <http://www.spatializer.com>



SPL Charisma

Charisma is an 8-channel tube processor designed to create tube saturation effects for digital recording media and to bring tube's warm, fat sound to synths and samples.



SPL Tube Vitalizer

This vacuum tube version of the popular SPL Vitalizer features LC and tube technology. Targeted users include mastering and high-end recording applications. Distributed by Beyerdynamic
56 Central Ave.
Farmingdale, NY 11735
Phone 516/293-3200; Fax 516/293-3288

Symetrix 55IE Parametric

The 55IE 5-band parametric EQ incorporates five fully overlapping bands of parametric EQ and features a new approach to equalization circuitry that delivers extremely low-noise audio performance. Each band allows for a range of 10 Hz to 20 kHz, adjustable frequency, bandwidth and boost/cut of each band, low- and high-cut filters and both XLR and 1/2" connectors for easy installation. U.S. list

is \$429.
14926 35th Ave. W.
Lynnwood, WA 98037
Phone 206/787-3222; Fax 206/787-3211
E-mail 102102.1126@compuserve.com



TC Electronic Finalizer

Unique 3-band stereo compressor/limiter/expander with extensive control parameters; 5-band stereo parametric EQ; Normalizer (gain maximizer); Insert Tools such as Digital Radiance Generator[™], stereo M/S adjust or de-essing; Wizard Function for optimizing preset selection; fade-in/out feature; analyzer functions for Phase, Digital Status, Level Overloads, etc. 20-bit A/D-D/A with 105dB dynamic range, 16-bit dithering and HP-TDF noise-shaping tools, AES/EBU and S/PDIF I/O. Price: \$2,495.

705-A Lakefield Rd.
Westlake Village, CA 91361
Phone 805/373-1828; Fax 805/379-2648
E-mail tcus@tcelectronic.com
Website <http://www.tcelectronic.com>

Troisi Octal Converter

Troisi announces its latest offering in the analog-to-digital converter market: The Digital Companion Octal Converter is an 8-channel ADC available with 16-, 20- and 24-bit converters and AES or multipin connectors for direct interface to the leading 8-channel digital multitrack recorders and workstations.

27 Almeria Cir.
Westford, MA 01886
Phone 508/692-7768; Fax 508/392-9869
E-mail troisi@ultranet.com



Uncle Albert's Amplifier V.T.D.

The V.T.D. (Vacuum Tube Direct Box) is an active tube D.I. suitable for recording or live sound applications. The V.T.D. offers a transformer-balanced XLR output and a tube-buffered 1/2" output to drive stage amps. XLR output. THD: 0.06% @ 1 kHz with a frequency response of 20 Hz-40 kHz, -0.5 dB. The V.T.D. uses one 12AX7 vacuum tube. Built in an aluminum case with solid walnut end caps. Price: \$362.95.

8103 E. 47th St., Bldg. B
Indianapolis, IN 46226
Phone 317/546-7674 or 800/416-2444; Fax 317/546-0035



Weiss Engineering EQ1

Digital parametric equalizer with seven frequency bands in a 3U, 19-inch mount cabinet. All seven bands cover the

—LISTING CONTINUED ON NEXT PAGE

RE

NEW!
4X_{write}/4X_{read}
CD-R System

Make your own CDs. Pinnacle's Recordable CD Systems are 3 drives in 1. A CD Recorder. A CD Player.

C O R D



A Backup Solution. These fast and reliable CD-R Solutions are designed to fit your needs. Audio/video.

A B L E

Multimedia. CD Mastering. The RCD 4x4 and the RCD 5040 (2x4) are priced aggressively and include

C D



professional CD-R software and a **FREE** backup utility. Call the optical storage leader today. **800.553.7070**

www.pinnaclemicro.com

The Pinnacle Micro logo is a registered trademark of Pinnacle Micro Inc.
All other trademarks are trademarks of their respective owners.

PINNACLE MICRO
THE OPTICAL STORAGE COMPANY

Tel: 714-789-3000 • Fax: 714-789-3150

USE READER SERVICE CARD FOR MORE INFO

World Radio History

—LISTING CONTINUED FROM PREVIOUS PAGE

entire audio frequency range. Each band has Boost/Cut, Frequency and Q/Slope knobs. The LCD display shows the overall EQ curve and detailed parameters for each band. A/B compare memory, snapshot event list and MIDI control are standard. Optional features in development include doubling sampling (88.2/96k) and linear-phase EQ. Pro user price: \$4,500.

Distributed by G Prime Ltd.
1790 Broadway, Ste. 402
New York City, NY 10019
Phone 212/765-3415; Fax 212/581-8938
E-mail info@gprime.com
Website <http://www.gprime.com/weiss>

XTA Electronics Audio Core Windows

Audio Core software is used to control the DP Series processors from XTA, including the DP100 Digital Audio Delay, DP200 Digital Audio Processor and the DP202EQ Digital Equalizer. Audio Core is Windows-based and can be used to program and control up to 32 DP Series units. Equalization, delay, limiting, crossover, gain and configuration parameters can be addressed in an easy-to-use screen format. Large systems can be programmed offline and updated in the field. Control protocol can be via MIDI, RS-232, RS-485 or contact closure.

Distributed by Group One Ltd.
80 Sea Lane
Farmingdale, NY 11735
Phone 516/249-1399; Fax 516/753-1020
E-mail JAKELG1@AOL.COM

Yamaha REV500 Reverb

The Yamaha REV500 offers extraordinary performance at a very attractive price point, competing with units at significantly higher prices. Intended to recalibrate the market's expectations for reverb unit performance, the REV500 offers the first application of the Yamaha 3rd generation DSP chip, resulting in dense reverberation and smooth decay. This DSP chip is also used in the more high-end ProR3 reverberation unit and in the mixing functions of the Yamaha 02R digital console. REV500 features include 20-bit A/D-D/A converters for high dynamic range and extremely low noise and built-in sound source for snare drum, cross stick and pulse, enabling reverb parameters to be set without an external signal source.

6600 Orangethorpe Ave.
Buena Park, CA 90622-6600
Phone 714/522-9011; Fax 714/739-2680
E-mail Info@Yamaha.com
Web site <http://www.Yamaha.com>



Zoom Studio 1204

The Zoom Studio 1204 rack processor features a range of unique new Vocoder programs, "intelligent" rotary speaker effects, MIDI control capability and a variety of world-class Zoom reverb and modulation effects. It also features a front-panel 1/2" balanced mic input for DJs and vocalists; MIDI control capability; 512 factory programs (32 effects x 16 patterns); 100 memory locations, professional 18-bit (44.1kHz sampling) sound quality and "easy-edit" two-parameter controls. List is \$249.

Distributed by Samson Technologies
PO Box 9031
Syosset, NY 11791-9031
Phone 516/364-2244; Fax 516/364-3888
E-mail sales@samsonetech.com



Accurate Sound Corp. TMM-100

The TMM-100 Tape Motion Meter is a test instrument for measuring the speed and length of moving tape, film or other material. This microprocessor-based digital readout instrument accurately displays speeds from 15.32 to 400 inches per second and lengths up to 100,000 feet; media widths from 0.150 to 1.0 inch can be measured. Power is supplied by an internal 9VDC battery with a power-saving circuit that shuts down if no motion is sensed for three minutes. An optional AC adapter is available. List: \$995.
3475-A Edison Way
Menlo Park, CA 94025
Phone 415/365-2843; Fax 415/365-3057



AudioControl Industrial IAS5Y

New design, patent pending, for a mixed-domain measuring analyzer that gives answers, not just data.
22310 70th Ave. W.
Mountlake Terrace, WA 98043
Phone 206/775-8461; Fax 203/778-3166
E-mail info@audiocontrol.com
Website <http://www.audiocontrol.com>



Gold Line DSP 30RM

A 19-inch digital rackmount RTA with precision microphone, duplicate line and mic connectors on front and rear, plus built-in pink-noise generator. Features include DSP triple-tuned ANSI 1/3-octave filters, 85dB window, LEQ time averaging, sum and subtraction modes and SPL in flat, A, C or user weighting. Expansion features include loudspeaker timing, RT60 and THD measurements, plus an RS-232 computer interface with software for PC- or Macintosh-based systems. Retail: \$2,195.

Gold Line 4-Channel Multiplexer

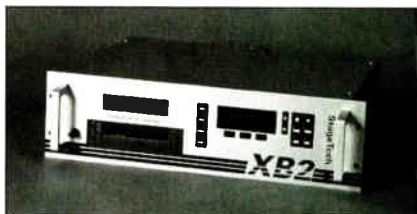
Gold Line announces the MX-4 4-channel microphone Multiplexer for use with real-time analyzers. The MX-4 provides RTA owners with the ability to do single-measurement spatial averaging. The package includes three measurement-grade microphones, XLR inputs and outputs and individual gain controls for all four channels. A channel mute function allows single-channel or multi-channel measurements and comparisons between various channel data. Retail: \$755.

Box 500
W. Redding, CT 06896
Phone 203/938-2588; Fax 203/938-8740
E-mail goldline@i84.net
Website <http://www.gold-line.com>

Integral Vision/AID Inspect Spindle Print

The integrated Spindle Print module will allow users of the Inspect Optical Disc Inspection System to print reports to affix to the spindles of inspected discs. The Spindle Print unit consists of a slip printer that prints a report selectable for each molding line. A separate reject spindle report, to print the reject reasons for each disc on the spindle, will also be available. This allows the operator to check the reject spindle and correlate the reject reasons to each actual disc. List: \$995.

38700 Grand River Ave.
Farmington Hills, MI 48335
Phone 810/471-2660; Fax 810/615-2971



StageTech Exabyte Error Checker

StageTech introduces the XB2 Exabyte Error Checker, providing full Exabyte tape verification and continuous audio playback. The XB2 provides fully automated verification of DDP files, transfer rates, error statistics and audio level information, together with real-time audio playback of DDP file format and digital audio workstation archive-format Exabyte tapes. The XB2 is aimed at premastering, glass mastering and CD manufacturing facilities. U.S. list: \$10,650.

3775 Arthur Ave.
Lincolnwood, IL 60645
Phone 847/673-5454; Fax 847/673-1389
E-mail sales1@dwrightcav.com
Web site <http://www.dwrightcav.com/catalogue>

Tektronix UPL Audio Analyzer

The UPL Audio Analyzer is a leading-edge, high-speed measurement tool, offering audio professionals both analog and digital audio signal measurements. Designed by Rohde & Schwarz and distributed through Tektronix in North America, the UPL offers spectacular analog performance and comprehensive measurement capabilities. Optional digital interface analysis capabilities, including jitter analysis and generation, make the UPL at home in mixed-signal environments. The UPL is easy to operate and portable, weighing only 22 pounds.

PO Box 1530
Pittsfield, MA 01202
Phone 800/426-2200; Fax 413/448-8033
Web site <http://www.tek.com/measurement>

 **Other Products**

3120 Banksville Rd.
Pittsburgh, PA 15216
Phone 800/537-3491; Fax 412/344-0818
E-mail aaps@pgh.nauticom.net

Cheney, WA 99004
Phone 509/235-2636 or 800/622-0246; Fax 509/235-2646
E-mail autopatch@xn-tech.com
Web site <http://www.autopatch.com>



Ac-cetera Inc. Lumin-Eze

Lumin-Eze model Dual Standard "Work Light" claims to be the only dual light system. The system clamps and locks to horizontal or vertical objects, and the extension arms swing and bend to illuminate two areas simultaneously. The shades turn for exact lighting and block unwanted glare from the bulb. Seven models make up the Lumin-Eze line, including a battery-powered version. Retail is \$99.95, including 12-volt power supply.

Anthro Corporation Rack Workstation

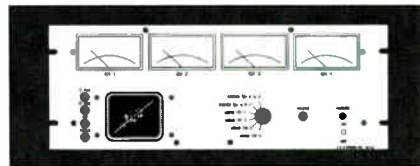
Anthro designs and markets mobile, strong technology furniture. AnthroCarts are used for personal computers, rack equipment, multimedia applications and broadcast equipment. Anthro now offers two more widths of Rack Workstations, available 48", 60" and 72" wide. The Rack Workstation comes standard with a 9-unit rack to hold 19" equipment. Prices start at \$979. All AnthroCarts are shipped within 24 hours and come with a lifetime warranty. Call for free catalog.

10450 S.W. Manhasset Dr.
Tualatin, OR 97062
Phone 800/325-3841; Fax 800/325-0045
E-mail sales@anthro.com
Web site <http://www.anthro.com>

AutoPatch Half-Y

The amazingly low-priced AutoPatch Half-Y matrix is designed for compact A/V systems. They're perfect for post studios, AFV, breakaway and vertical-interval switching. Constant matrix status, professional signal specs and straightforward controls are on the long list of standard Half-Y features. A serial control interface and variety of connector options will be available this fall. Composite video, mono and stereo configurations shipping now are the 6x2, 8x2 and 8x4—all priced under \$1,000.

A division of XN Technologies
2416 Cheney-Spokane Rd., Box 350



B & B Systems Inc. Model AM-4B

Four-channel audio phase and level display unit. 19" rack-mount chassis with full-time VU ballistic metering of four independent audio channels and 5" CRT display of sweep and phase between selected channels. Inputs are active, high Z. Meters meet full ANSI VU specifications.

28109 Avenue Stanford
Valencia, CA 91355
Phone 805/257-4853; Fax 805/257-8065

BEC Technologies Millennium3

Millennium3 is a fully interactive multimedia management system. It's designed to receive, process, route and deliver many different forms of information from 24-bit studio-quality audio and high-quality video for real-time MPEG2 encoding to switch closure, control voltage and voice signals. These various signals are interfaced to BEC's highly efficient and mature networking architecture through plug-and-play circuit boards mounted in a 3-rack-space card frame.

—LISTING CONTINUED ON NEXT PAGE



PatchLinkTM

The Easy Way to Link Your Audio Systems

- Economic and versatile 1/4" modular Patch Panel
- 19" Rack-mount panel
- Identification strips included
- Non-tarnishing contacts
- No solder set up - individually replaceable PC cards
- 48 Jacks in one rack space
- Easy change from normal to 1/2 normalled by turning card around

NEUTRIK USA
CONNECTING THE WORLD

195 Lehigh Avenue • Lakewood, NJ 08701
e-mail NEUTRIKUSA@AOL.com
telephone (908) 901-9488
fax (908) 901-9608

SEE US AT AES BOOTH # 1300

USE READER SERVICE CARD FOR MORE INFO

—LISTING CONTINUED FROM PREVIOUS PAGE

9460 Delegates Dr., Ste. 108
Orlando, FL 32837
Phone 407/855-8181; Fax 407/855-1653



CAIG Laboratories CalLube MCL

CalLube is a precision lubricant formulated to lubricate conductive plastic and carbon compound faders, switches and similar components. It replenishes surfaces that have lost their original lubrication from wear and/or repeated cleaning. Dust, dirt, drink spills and other contamination also degrade the components' lubricant. Relubrication is necessary to avoid excess wear and abrasion to plastic surfaces. Available in 5% spray, 100% spray, precision dispenser and other container sizes.
16744 W. Bernardo Dr.
San Diego, CA 92127-1904
Phone 619/451-1799; Fax 619/451-2799
E-mail caig123@aol.com
Web site <http://www.caig.com>

The DICE Company Argent

A digital steganography-based watermarking system suitable for use with data such as audio, video and still images. Could be used for automated broadcast monitoring of encoded material, royalty collection, proof of ownership in electronic distribution chains, automated copyright detection and management and tracing ownership of sampled digital material.
PO Box 60471
Palo Alto, CA 94306-0471
Phone 415/326-4346
E-mail info@digital-watermark.com
Web site <http://www.digital-watermark.com>

Dorrough Balance Meter Model 40-P

The Dorrough Balance Meter Model 40-P provides users with a graphic means for displaying imbalance of audio signals. The unit accepts either mono or stereo signals and displays a read-out beginning at center. When in Balanced Discrete Mode, the difference between the left and right side displays presents a relative visual balance reference in amplitude. When in Balanced Center Point Mode, perfect parity is achieved when the two center green LEDs go dark.
20434 Corisco St.
Chatsworth, CA 91311
Phone 818/998-2824; Fax 818/998-1507

FM Systems TVP-20/RVP-20

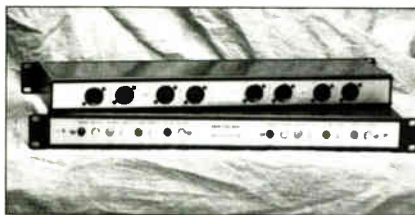
These devices are used to transmit two camera signals over a single coaxial cable at the same time. The signals may be in the same direction or opposite. Any video cable in your system can carry two video signals or, with RS-232C on a DB25 connector, you may transmit a video camera picture and RS-232C data at the same time.
3877 S. Main St.
Santa Ana, CA 92707
Phone 800/235-6960; Fax 714/979-3355

HM Electronics UHF Wireless Intercom

HME's System 800 has a rackmountable base station and remote communicator UHF belt-packs for full duplex communications. Belt-pack buttons allow push-to-talk action and lock in for hands-free operation. Short, lightweight belt-pack antennas give stage and studio crew great mobility. Transmission is clear up to 2,000 feet from base. System 800 interfaces with cabled intercoms, expands easily, requires no installation and delivers high-quality sound.
6675 Mesa Ridge Rd.
San Diego, CA 92121
Phone 619/535-6060; Fax 619/552-0139

Innovative Electronic Designs 412PLC

The 412PLC is IED's new programmable level controller. A new processor design allows for more functionality. The front panel is a membrane technology that fits in a standard-decorum wall plate. The 412PLC can produce voltages from 0 to 5 VDC or 0 to 10 VDC in both log and linear output. It allows front panel setting of emergency, preset and cutoff levels and front panel lockout of the keypad. It is a truly programmable level controller.
9701 Taylorsville Rd.
Louisville, KY 40299
Phone 502/267-7436; Fax 502/267-9070



Jasoni Electronics Model 2000

The Model 2000 Matrix Switcher was designed for use with analog reel-to-reel machines (or any stereo analog source) to yield the highest quality when dubbing to analog cart machines or hard disks. Eight outputs are available from the 2000: mono, stereo, stereo reverse, left only, left mono, right only, right mono and phase reverse. A must for any production room! Pro net: \$289, prepaid.
3149 E. Desert Inn Rd., #94
Las Vegas, NV 89121-3845
Phone 702/791-3394

Jensen ISO-MAX Video Isolator

Designed for high-end audio/video systems, the ISO-MAX Model VB-1BB is a high-performance, transformer-based video ground isolator. Inserted in standard 75Ω video cable, it eliminates video "hum bars" and audio system hum or buzz frequently caused by such connections. Bandwidth (-3 dB) is 10 Hz to 10 MHz; hum rejection is 120 dB; and insertion loss is only 0.6 dB. Rugged steel case can mount horizontally or vertically on standard rack rails. List is \$99.95.

Jensen ISO-MAX CATV Isolator

Designed for high-end audio/video systems, the ISO-MAX Model VR-1FF positively prevents the cable TV connection from "injecting" hum or buzz into audio/video systems. Not just a filter, it is a high-performance, transformer-based ground isolator that is installed in-line in standard 75Ω co-axial cable with F connectors. Bandwidth (-3 dB) is 40 MHz to 600 MHz; insertion loss is under 1 dB; and it requires no power or special grounding. List is \$49.95.
7135 Hayvenhurst Ave.
Van Nuys, CA 91406
Phone 213/876-0059 or 818/374-5857; Fax 818/763-4574
E-mail info@isomax.com
Web site <http://www.isomax.com>

Middle Atlantic Products Multidesk

The unique Multidesk system is a modular approach to studio furniture, allowing for a wide variety of custom configurations. Five easy-to-assemble pieces fit together in any combination. Features gray, speckled, high-pressure laminated tops that attach using threaded metal inserts for added strength. (No wood screws!)
6 North Corporate Dr.
Riverdale, NJ 07457
Phone 201/839-1011; Fax 201/839-1976



Musicam USA CDQPrima

Enhancements to the CDQPrima digital audio codec include ISO/MPEG Layer III, dual-channel send and auto contrast display. FieldFone pots codec with improved audio quality and 20-7.5k Hz bandwidth for use on all analog telephone lines worldwide. StudioFone rackmount pots codec with IFB and in-band signaling and relay contact closures. ISDN FieldFone offers 15kHz crystal clear audio on a single ISDN "B" channel, compatible with all MPEG audio codecs. Portable ISDN codec has multichannel mix capabilities, memory presets and all popular algorithms.
670 N. Beers St., Bldg. 4
Holmdel, NJ 07733
Phone 908/739-5600; Fax 908/739-1818



R. Columbia MS/PW-22 Talkback/Intercom

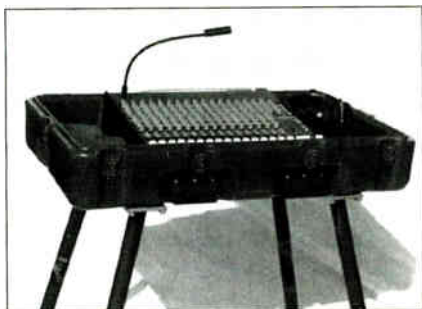
Model MS/PW-22 is a rugged, lightweight, single-channel, portable Intercom Main Station/Control Console. It can be expanded to any number of channels by the simple addition of plug-in slave units. The main station and each slave support up to ten headset stations each. Model MS/PW-22 measures 2.5x3.5x6" and weighs only 14 ounces. All wiring between stations is via standard 3-pin XLR mic cable. Rackmount kits are available.
2008 St. Johns Ave.
Highland Park, IL 60035
Phone 847/432-7915; Fax 847/432-9181

Rane Engineered Conference Systems

Rane introduces Engineered Conference Systems (ECS™)—a comprehensive yet compact new line of electronics for engineered audio teleconferencing, distance learning and boardroom applications. ECS is RaneWare™ RW 232 software-controlled, featuring automixers, echo cancellers, telephone access (two/four-wire), remote setup and diagnostics with password protection.
10802 47th Ave. W.
Mukilteo, WA 98275
Phone 206/355-6000; Fax 206/347-7757
Web site <http://www.rane.com>

Sound Choice Assistive Listening

Sound Choice Assistive Listening Inc. features the Model SC-186K Infrared Audio Transmitter as the inexpensive solution for ADA compliance in medium-sized venues. This powerful, portable, self-contained transmitting system emits enough infrared power to fill at least 1,500 square feet. Aerospace infrared technology offers unprecedented coverage from a small unit. External mic, input and output jacks are provided. A mute switch and 360° adapter are optional.
 PO Box 843
 Doylestown, PA 18901
 Phone 215/230-8600; Fax 215/345-1389
 E-mail sndchoice@aol.com
 Web site <http://www.eclipse.net/~synergy/soundchoice.html>



Technomad Cases

Technomad Mil-Spec, ATA III-rated cases are of a patented one-piece, rotationally molded design for maximum

strength and reliability. Technomad Cases are available in an array of models for all types of professional audio equipment. Colors are black or gray; standard orders ship within three days. Technomad Cases are, on average, 70% lighter than wood cases. A user will see a significant savings on shipping costs, without sacrificing equipment protection or safety.
 12 Elm St.
 Hatfield, MA 01038
 Phone 800/446-SPKR; Fax 413/247-3395
 E-mail info@technomad.com
 Web site <http://www.technomad.com>



Telos Systems ZephyrExpress

The ZephyrExpress Portable ISDN Audio Transceiver is the ideal solution for remote broadcasts and other applications, eliminating the need to lug additional electronics. It combines a full-featured audio codec with MPEG Audio Layers III and II, as well as G.722, a built-in ISDN terminal adapter and an audio mixing/monitoring system in a road-rugged chassis. Designed for ease-of-use by nontechnical staff, ZephyrExpress can also serve as a complete ISDN system for smaller studios.
 2101 Superior Ave.

Cleveland, OH 44114
 Phone 216/241-7225; Fax 216/241-4103
 E-mail info@zephyr.com
 Web site <http://www.zephyr.com>

Wireworks Rackmount Mic Splitters

Wireworks' new RSD12, RST12 and RSF12 rackmount transformer-isolated microphone splitters offer a choice of 1, 2 or 3 isolated outputs. Each splitter is designed for heavy-duty pro use, in studio or on the road, and feature 12 female XLR connectors for microphone inputs, the latest generation Jensen transformers for peak performance, individual ground lift switches and 1, 2 or 3 male XLR outputs. All connectors are mounted on the front panel for easy access.
 380 Hillside Ave.
 Hillside, NJ 07205
 Phone 908/686-7400 or 800/MIC-CABLE
 Fax 908/686-0483

Attention!
 Dial up *Mix* directly.

<http://www.mixmag.com>

for updated editorial and
 advertising information.

PERFORMANCE AND VERSATILITY



TROISI *Digital Companion* A/D and D/A Converters

See Troisi products at the Z Systems AES booth.

Available at these fine dealers:

David Carroll Electronics	510-528-8054	Sonotechnique	800-449-5919
Westlake Audio	213-851-9800	Parsons Audio	617-431-8708
General Info: 508-481-9322	Email: troisi@ultranet.com	Broadcaster's General Store	352-622-7700
		Browse: www.troisi.com	

USE READER SERVICE CARD FOR MORE INFO

GEZA X

THE PERSISTENCE OF PUNK

When punk rock hit the West Coast in the late '70s, disaffected youths responded to the call by pouring out invigorating doses of their own high-energy, committed noise. Among the new music's early innovators was L.A. native Geza X, who leapt into the fray as a musician, live sound mixer and recordist. In a flurry of activity, he produced

friend." As the punk underground spread throughout Europe, Geza found himself in the strange position of being internationally famous, but not known at all in any kind of an industry sense.

By the mid-'80s, the difficulty of earning a living making punk rock in combination with the scene's hard-living ways had taken a toll, and Geza took a hiatus from the

wholly different era, but as Geza X demonstrates, talent and spirit can still thrive.

*In an old *Slash* magazine interview from 1978, you said that you first got into making records by engineering funk and disco stuff in '75? Yeah, my studio experience begins with a place called Artist's Recording Studio. I slept on the floor at*

the studio, and I was reconditioning all the gear at night and running my first sessions by day. I did tons of Mariachi and disco and funk. So when I got involved in punk rock I had the know-how to make a record.

What were some of the origins of the punk scene on the West Coast? How did you get involved?

Well, the only club scene in L.A. at the time was all these little cafes where if you took a Fender Champ amp and turned it up past two, you'd basically get booted out. There was no rock music. It was just singer/songwriters playing for free in these endless

"audition nights." Then The Ramones came to L.A., and maybe ten of us went to see them, there was no audience. But we were in front drooling and screaming. We couldn't believe our ears, because it was the first Marshall amp we'd heard in five years. It was really right after that that the punk bands started in L.A. I don't know what the direct correlation is, but it was the Sex Pistols, The Ramones, and then all of a sudden there was [West Coast] punk rock. A lesser-known influence was Greg Shaw of Bomp Records, whose speculative articles about "garage punk" were highly prophetic. In fact, I think he coined the term "punk rock" as early as 1973.

In the earliest days, there were



PHOTO: DON LEWIS

and engineered for ferocious Southern California combos such as The Weirdos, Black Flag, The Germs and The Screemers. His work with live music also took him up to San Francisco, where he established himself as an important figure in that scene, ending up producing and/or engineering The Nuns, The Avengers, and the Dead Kennedys' landmark *Fresh Fruit for Rotting Vegetables*.

It was a lot of success, but back in the days when a mohawk was truly threatening, punk was more of an avocation than a business. "It wasn't so much being an engineer for hire," Geza explains. "The person whose band you idolized the most in those days was also your next door neighbor and your best

business. Within a few years, though, he had returned and was slowly easing his way back to full (musical) throttle. A decisive step came about three years ago, when he and partners built a personal studio, dubbed City Lab, housing a 24-track Stephens tape machine and a Soundcraft Spirit console.

Nowadays, with punk-inspired music topping the charts, Geza's long experience and past credits are standing him in good stead: Working largely out of his own place, he's been extremely busy producing and engineering projects for a slew of interesting acts such as 1000 Mona Lisas (RCA) and Magnapop (Priority). It may be a

BY ADAM BEYDA

CARVIN

50th Anniversary Giveaway

We're giving away over \$50,000 in gear!



GRAND PRIZE PACKAGE: \$21,671

CARVIN PA SYSTEM

2444-1505 3000 watt Sound System.....	\$8995
SNK24 Snake cable.....	\$899
RM8 8 Space Rack Case.....	\$289
MR20 Mixer Stand.....	\$149

GUITAR AMPLIFICATION

MTS 3200 Anniversary Series Amp Stack.....	\$2495
--	--------

GUITAR & BASS

DC400TA Anniversary Guitar.....	\$3399
LB76A Anniversary Model Bass.....	\$3250

BASS AMPLIFICATION

RED LINE SERIES Bass Amp Stack.....	\$2195
-------------------------------------	--------



To help celebrate our 50th year, Carvin is giving away \$50,000* in merchandise. Enter now by sending in the coupon below (1 per person). Each time you order from Carvin your name is automatically entered. The winners will be drawn by Allan Holdsworth on January 31, 1997. With your entry you will receive the 1997 catalog with all of Carvin's new products at factory direct prices. Thank you for the last 50 years!

CANADA, HAWAII, ALASKA—U.S.A.
FOR A FREE CATALOG OR TO ORDER CALL:
800-854-2235

<http://www.carvin.com>

HOLLYWOOD 7414 Sunset Blvd. Hollywood, CA 213-851-4200	WEST COVINA 2211 E. Garvey Ave West Covina, CA 818-332-5727	SANTA ANA 1907 N. Main St. Santa Ana, CA 714-558-0655	SAN DIEGO (factory) 12340 World Trade Dr. San Diego, CA 619-487-8798
--	---	---	--

Yes, enter me in the Carvin 50th Anniversary Giveaway & send me a free Carvin catalog (One entry per person).

No, don't send me a catalog just enter me in the Giveaway

Name _____

Address _____

City _____ State _____ Zip _____

Send to: CARVIN, 12340 World Trade Dr., San Diego, CA 92128
 Fax: 619-487-8160

code# MX106

SECOND PRIZE: \$5894

Choice of DC400TA Guitar & MTS 3200 Amp Stack or LB76A Bass & RED LINE Bass Stack

THIRD PRIZE: \$3399

Choice of "Holdsworth" Signature Guitar, LB76A Bass, MTS 3200 Amp Stack, or RED LINE Bass Stack.

2 FORTH PRIZES: \$2099

Choice of AE185 Guitar or AC275 Guitar

5 FIFTH PRIZES: \$1629

Choice of MTS3200 212 Combo Guitar amp or RED LINE Combo Bass amp.

7 SIXTH PRIZES: \$849

AG100-12 Multipurpose Acoustic Guitar Amplifier

15 SEVENTH PRIZES: \$69

CARVIN Guitar or Bass Gig Bag

18 EIGHTH PRIZES: \$20

Carvin Tee Shirt

50 PRIZES TOTAL GIVE-AWAY VALUE: \$50,645*

*Retail—list prices

OFFICIAL GIVEAWAY RULES

To enter: Print your name and address on the entry form. Only official entry forms will be accepted and only one entry per person is allowed. No mechanically reproduced or electronically produced entries will be accepted. Send completed entry forms to "Carvin's 50th Anniversary Giveaway", 12340 World Trade Drive, San Diego, CA 92128. All entries must be received by December 31, 1996. You will be automatically entered in the "Carvin 50th Anniversary Giveaway" each time you place an order with Carvin on or before December 31, 1996. The winners will be drawn at random. The winners may be required to sign and return an affidavit of compliance with these rules and a release for the use of his or her name and likeness for publicity purposes without further consideration. This offer is void where prohibited by law, and is subject to all applicable federal, state, and local regulations. Taxes are the sole responsibility of the winners. The Carvin 50th Anniversary Giveaway is open to all legal residents of the United States and Canada, except the province of Quebec and employees of Carvin. Winners may substitute other Carvin equipment of equal value. Odds of winning depend on the number of entries received. The rules and conditions of the Carvin 50th Anniversary Giveaway may be changed without prior notice. Carvin shall be deemed sole interpreter of the rules and conditions.

just a few punk bands in L.A.—The Germs, The Screamers, The Weirdos, and then I joined a band called The Bags. As a result, I met some of the pivotal early people on the scene, of which there were really only like 20 of us. Then this club opened called The Masque run by Brendan Mullen. There were some of us who rented rooms there that were ostensibly rehearsal rooms, but everybody lived in their rehearsal room because we were all broke. In the middle there was a larger area, where the bands that rehearsed there started doing shows. Brendan got outside bands, too, who were part of that local scene, and really, that network of people basically created punk rock in L.A. Needless to say, it was an incredible time: We were drunk as skunks every night. I was the Masque's... I guess you could say "soundman," because I had a P.A. [Laughs] We'd go out there just reeling with alcohol, and I'd mix all these bands.

I spread the word around that I was a producer (something I hadn't actually done yet), and lo and behold, Darby Crash of The Germs came up to me one day and said, "You're a producer? Produce us." That was The Germs' "Lexicon Devil," the first single for *Slash* magazine, which is what became *Slash* records. From there I ended up pretty much in quick succession producing a lot of stuff. I produced The Bags, I produced The Deadbeats for Dangerhouse, which was one of the first indie labels on the West Coast. It was the beginning of what is now the "alternative" scene, which then really *was* an indie scene. We were making our own records and learning everything by the seat of our pants. It was really time-intensive and kind of scary, because there was never any money, but it was insanely fun, too. *And where were you recording those bands?*

Just tacky little basement studios in Hollywood. Commercial studios of the five-to-ten-dollars-an-hour variety.

Where did you record the Dead Kennedys?

At this place called Tewkesbury [in the San Francisco Bay Area], which was Dan Alexander's old studio. It had this old MM1000; you'd press stop and the brakes were screwed up, so on all of "Holiday in Cambodia," I would rewind the tape, then shuttle it so it would slow down a bit and then actually stop it with my bare hands. If that tape would have stretched I don't know what



Magnapop

PHOTO: SHEIRI ETHEREDGE

would have happened to the song! *Was there a sense back then that what you were doing really mattered? Was it exciting on that level?*

It was really exciting, because it was a people thing, and it was so strong. There was the punk stance kind of thing, but still there was this hope of getting signed. But major labels wouldn't even spit at us—it was just ridiculous, the gap between the indies and the major labels. Here was the biggest social movement since the '60s, and the major labels said there is nothing commercially viable in punk rock, therefore we're not going to sign any of it. I worked doing sound for The Screamers—this is a band that, in any universe other than that one, would have been courted by every label. But the labels didn't give a shit. That pressure created independent records, because there was no place to turn except inward. Now it's completely changed, and that whole "indie" thing is often a big scam. For a person like me, who was there at the beginning of that and is now seeing a lot of recognition for his work, in a way I also feel like I've been sucker punched, because this really isn't exactly the world I created.

[Laughs]

LIVE FROM THE MASQUE

So maybe your mom threw out all your old Screamers and Deadbeats LPs, or maybe you missed L.A.'s lesser-known original punks completely. Well, if you're curious, a good place to start is with three recently released CDs titled *Live From the Masque*.

The debut releases from Year 1 Records (a new label co-owned by artist and X stalwart Exene Cervenka), the CDs chronicle two shows from consecutive days in 1978. The event, which took place at the former Elks Lodge in L.A., was a benefit for key early punk venue The Masque (which had incurred excessive legal fees, thanks to regular visits by the L.A.P.D. and the fire marshal).

Featuring raw performances from Masque regulars such as The Skulls, F-Word, The Eyes, The Weirdos and Black Randy & the Metro Squad (alongside more well-known bands such as X, The Germs and The Dickies), the CDs give the listener a taste of the rowdy punk community, where there was little separation between the audience and the band, and the musicians played in several different line-ups.

Geza X did the live mix and recorded the shows on a Dokorder 4-track 1/4-inch machine. "It's miraculous that these recordings survived," he says. "I lugged them from one seedy Hollywood apartment to another for nearly 20 years. In fact, the oxide was turning into silly putty, so I never played them back." Though the sonic quality of these live recordings isn't great, the spirit of old-school L.A. punk comes through loud and clear.

—Adam Beyerla



World Radio History

PLUG IN MORE POWER WITH SAW FX PLUG-INS!

REVERBERATOR

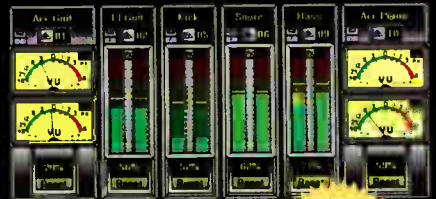


Limited Time Only
\$149.00
Call Now to Pre-Order!

The REVERBERATOR (\$299.00) brings new power to your Saw6x/Saw Plus environment by opening up the world of real sounding Room Reverberation to each track on the MultiTrack. The REVERBERATOR is capable of real-time processing of 16 bit stereo 44100 soundfiles on a Pentium 133 or faster machine. The algorithms used incorporate the same Comb/Allpass filter design found in many high quality rack mounted reverb devices, but the REVERBERATOR takes this design to the max. Most devices of this type use 4 Comb Filters and 2 Allpass Filters, but the REVERBERATOR gives you up to 20 Comb Filters and 20 Allpass Filters, with Hi Freq Diffusion control in each Comb Filter feedback path and a high quality sharp cutoff Bandpass Filter on the overall wet output. What this means, is reverberation that rivals the more expensive rack devices in sonic quality. Choose one of the many preset chambers or edit and create your own. The edit mode gives you complete control over every parameter involved in the design. A beautifully crafted interface gives visual displays of each of the Comb and Allpass filter parameters and a powerful Response View will actually display a real calculated impulse response of your chamber settings. You can also control the Dry and Wet mix as well as the Room Decay time for each of your selected chambers. Having the reverb control available within the MultiTrack environment allows incredible control over room simulation effects within your mix. If your machine is not fast enough, you may also process a track thru the REVERBERATOR and output the result back to the original file or to a new file. You may choose to process just the wet signal to a new file and place that file on another track, and then automate dynamic reverb mixes by adjusting the fader up and down on the Wet track during a mix. The REVERBERATOR can seriously enhance any Saw production.

METER BRIDGE

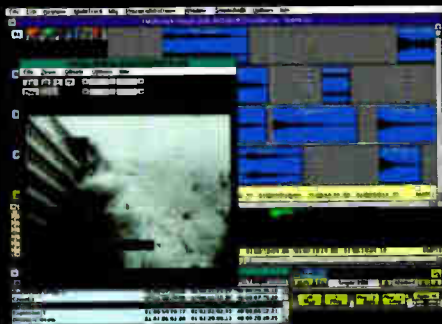
The METER BRIDGE (\$199.00) enhances your SAW 6.x or SAW Plus environment with beautiful visual displays of individual or multiple track playback volume reference meters. The meters can be assigned to any track, including output tracks, giving you a live/real-time LED or VU meter display of your multitrack session. The displays can be mixed (LED/VU), labeled, and positioned anywhere,



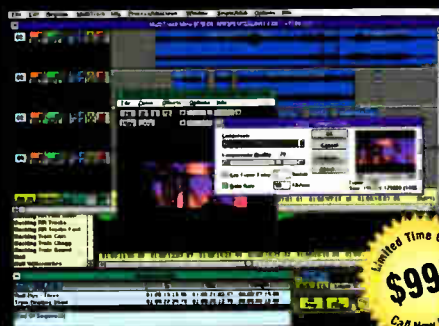
Limited Time Only
\$99.00
Call Now to Pre-Order!

and all information is retained with your EDL's. Now you can easily see levels anywhere within your session by simply placing your MT cursor and playing back. Placing meters on the output track lets you easily adjust your output offset volume to keep your mix below clipping. Meters retain the highest margin hit during playback, even after playback ends, for a quick visual reference of your overall mix level. A must for the serious SAW enthusiast.

AVI Viewer



The AVI VIEWER (\$199.00) is an exciting new tool which makes sound editing to video a simple and affordable process. The AVI VIEWER is assigned to a track of the MultiTrack View through the FX Patch Builder Window. The viewer will display an AVI Video File to the computer screen without the need for any additional hardware, or to an external full screen video monitor with the use of specialized video capture boards. This video display is dynamically linked to the SAW 6x or SAW Plus MultiTrack environment and will track precisely with all MultiTrack cursor movements in any SMPTE Mode, with sub-frame accuracy. As you move the MultiTrack cursor, the video display will chase accurately frame by frame, or you may position the video with the viewer's scroll bars and the MultiTrack cursor will chase frame by frame. The link works



both ways. Placing audio regions in exact sync with video is a snap. The exciting news about this technology is that the synchronization is exact and perfect because SAW is in charge of each video frame, unlike most software players on the PC that use MCI commands to try to play and sync video and audio. The combination of SAW and the AVI VIEWER can substitute for audio/video equipment costing tens of thousands of dollars!

Limited Time Only
\$99.00
Call Now to Pre-Order!



4680 S. Eastern Ave., Ste D
Las Vegas, NV 89119

Tel (702) 435-9077
Fax (702) 435-9106
BBS (702) 435-7186

For
Direct
Sales

CALL 800-844-1554

Website: www.iqsoft.com Email: info@iqsoft.com

STEREO DIES

Wahoo, NE. April 1999.
John Q. Stereo dies. Best known for being able to fit into two narrow grooves on a circular piece of vinyl, J.Q. Stereo is survived by multiple children of the Digital age who, although they loved their father, they have no patience for numbers under **four**. In fact, they much prefer the number **5.1**. Truly sorry about their father's untimely demise, they are joyfully spending their inheritance on six channel surround systems for every room of their new homes.



STEREO IS DYING. The future is Surround. Video, Film, Records. Enter *Cinemix*. D&R's legacy lives on with an elegant blend of Digital future and Analog past. Designed to meet your needs long after the imminent demise of John Q...

- Mix and monitor in 2,4, and 5.1 (six channel) formats
- Moving fader Automation on upper and lower inputs
- Fully divergent 6 channel automated joysticks
- Digital ARM Matrix Recall
- 360 degree panning
- Optional dynamics



D&R Mixing Console

Amsterdam: +31 (204) 418-01

Dallas: (903) 485-234

Los Angeles: (818) 291-585

Email: drna@koyote.com



How did the original punk days end for you?

By the time I stopped the whole first go-around, I was burnt to a crisp. First there was a lot of drinking, then there was a lot of drugs, and I was probably ready to be hospitalized by that time. I've always been really good at recording; the only difference is that that was a different era, and I did a lot of crazy things. I don't drink or take drugs anymore, but for then it was totally appropriate and essential behavior.

And fun, in a way?

Oh, incredible fun, but a lot of people never lived through it. Recovering from that was slow and difficult, and it took me a long time. Now that I'm in my power again and doing things that I really love doing, I'm doing them differently.

So when you came back to town, how did you re-establish yourself?

First I just started playing in bands and getting back into the clubs again, and as I started rekindling a lot of relationships, I basically took the same route. I got into a studio as a staff engineer and got my chops back up to speed and beyond. Then I built my own studio, and in the meantime I began producing records again. Then when I had my own place, it became much easier to do the kinds of projects that I wanted to do, to be able to have a much more specific control of the outcome. I am still, in a certain way, kind of a diehard punker because I really like to do things my own way, and I have a lot of recording methods that are atypical.

How so?

Well, I have a really, really long technical background spanning maybe 20 years. I know a lot of old-school and new-school recording methods, so I can draw from a really wide palette of ways of approaching something.

In terms of engineering, how would

SOME GEZA X TECHNIQUES

"I like to record totally dead and add all ambience later. I'll use several different short reverbs [.8 to 1.8 sec], room sounds and delays [favorite range is 18-28 ms] in the mix to give a track polish without sounding like there's anything on it. I will typically have four or five overlapping effects on a vocal, for example, even on a hip hop or punk song, yet it will sound totally dry in the track.

"I'll use a dual pitch shifter with one side sharp and the other flat, and then I'll put the main sound center or thereabouts, to create stereo ambience. The advantage of that is that the phase cancellation is taking place in the air rather than electronically, and it pushes a sound forward without the thinning that happens with a chorus. Putting a dab of that on can add 'intimacy' to a vocal without being audible as an effect.

"I'll mix through a pair of Telefunken V-76s set to unity gain to improve overall frequency response and reduce midrange harshness. There's nothing like tubes. Then I send that to the Apogee and master straight to the DR-4 or Panasonic 3700, depending on whether I want to do my edits on the spot or not. Incidentally, if you sync the DR-4 to the 24-track, you can also make assemble edits or 'punch

into' a mix for sonic shifts that go beyond automation.

"A trick I picked up from my buddy Steve Snow, who does a lot of hip hop and acid jazz, is to set up a pre-fader effects chain through a cranked 1176 and a parametric EQ on a peaky setting, to recirculate drums and loops through. I've added an expander before the return to tighten it and clean up the crud. You can really get an exaggerated 'sampl'y' sound with any signal source, and, amazingly, you can get a very cool room sound on drums, too. Or, I'll re-circulate stuff through a small amp with a gate on the send and return. I've also built various telephone transducers etc. into cardboard toilet paper tubes and plastic hoses for weird effects loops.

"I like to 'rebuild' a live kick drum in the mix by gating it way down and putting it through a super-tight parametric and tuning the bottom frequency to, say, 90 Hz. Then I can incrementally add stereo ambience with something like an E-bass setting on a REV7 and fatten it back up with regular EQ, while being certain of what my floor frequency really is, and that it's dead in-phase. It leaves room for a nice, fat Pultec'd bass guitar and creates a huge, clear, focused bottom end that mastering engineers love."

**Affordable,
Reliable,
Quality
Products
from a
company
you can trust!**

**AUDIOTEK
PRO-SOUND SYSTEMS**

CALL FOR FREE CATALOG

MIAMI NEW YORK
PH: (305) 593-8008 PH: (718) 488-9322
FX: (305) 593-8099 FX: (718) 488-9325

USE READER SERVICE CARD FOR MORE INFO

BEAUTIFUL PUSH-ON KNOBS

Elegant, precision-molded push-on knobs combine quality performance with outstanding economy. Available in a broad range of types, sizes, colors and accessories, including two-piece and double-injected, high-profile pointer styles. New "velvet touch" finish is now available from stock. Attractive OEM discounts in quantities as low as 100 pieces! Request 16-page full-color catalog and FREE sample knob

SEICO ▲ ▼ SEICO

HANDSOME



COLLET KNOBS

Selco's collet knobs meet the highest standards of precision, durability, performance, and beauty. Solid brass hardware is permanently bonded to a matte-finish, 94V-2 nylon body. Black or gray, with snap-on caps in a wide selection of standard and special colors. Full range of sizes, types, and accessories. Attractive OEM prices. Request full-color knob catalog today.

selco PRODUCTS CO.
7580 Stage Road, Buena Park, CA 90621
(714) 521-8673, or (800) 229-2332
FAX (714) 739-1407

WHAT
MAKES
YOU
SO
DAMN
GREAT?

(WE KNOW!)

CALL TOLL FREE
1.800.859.8401

For Your Free Catalog



Serving the Music Industry for Over 45 Years.

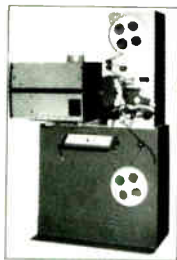
2832 Spring Grove Ave., Cincinnati, OH 45225
Tel: 513.681.8400 • Fax: 513.681.3777

USE READER SERVICE CARD FOR MORE INFO



**ELECTRONIC INTERLOCK
16-35-70mm MAGNETIC
FILM RECORDERS,
REPRODUCERS,
PROJECTORS**

The Standard of Hollywood and the World



- For Film and Television Re-Recording
 - Electronic Looping
 - High Speed Dubbing
- Electronic Studio High Speed 16 & 35mm Projectors
 - Telecine Magnetic Followers
 - Video Tape-Film Intertock Systems
- Total Facility Engineering, Consultation and Design

MAGNA-TECH ELECTRONIC CO. INC.
100 N.E. 39th Street, Miami, Florida 33137
Phone: (305) 573-7339 Fax: (305) 573-8101

PRODUCER'S DESK

you describe some of the differences between old- and new-school techniques?

The old-school recording method is like a jazz date or a string date, something like that. It's about using live sounds and live acoustics, and it's about the subtler points of mic placement and ambience, and the cohesiveness of capturing the moment, pretty much on the spot. The new school is the world of post-MIDI, post-rap music and sampling, which has had an incomprehensible impact on how recording takes place now. I don't think people really appreciate it as much as they should. The bridge between those two worlds was tape manipulation like Frank Zappa would do, and sound effects and altering sounds, things like that. I still include that in the old-school mindset, because you're using isolation as an effect, you're using a fuzz tone as an effect.

The new school is about plugging things in and using things that are generated electronically, and recorded and edited electronically and separately. Everything is very construction-oriented, and alteration-oriented, where the old school thing is more musician-, engineer- and arranger-oriented. So it's one spectrum but it's two different worlds, and a lot of the new-school engineers don't know a lot of the old-school tricks, because it goes back so far. Now, with the rekindling of interest in tube gear and a lot of the older gear, people are recognizing how unique, warm and good a lot of the old stuff sounds. People are becoming re-acquainted with it. In that era, there were really specific ways of using that equipment to achieve very exact things, and I feel fortunate that I have all of that stuff available to me, too.

For a guitar band, how do some of these new-school things apply?

It applies a lot if you do a project where you record portions of a song, or you record a song and then you take it apart and re-assemble it in Sound Tools or something like that and just pick the best of everything. You can create something that's analogous to a sequenced type of song, but it's done live. *Do you do that?*

Yes, on some projects, but I usually go for the rawness: If I'm working with a band, and it tends to be a loud and rowdy band, that's something where you want the heart of the thing to be communicated through the whole song. Then I prefer the live approach, or the semi-live approach with lots of

overdubs.

During the overdubs, I'm working with people on the actual parts, kind of writing parts on-the-fly and modifying them so they're tighter. Even if you work on songs in pre-production, you always find areas that clash, that aren't really rhythmically together, because people can play together for years and not notice certain things. So that's where I get a chance to refine all the parts: then when it gets to doubling them and creating counterparts, even with a punky sounding band it's really productive to do chords in different positions and hide them in the mix so you get a much richer chordal harmonic structure. So it can sound like a three-chord band, but you've got all of this other stuff going on. The other thing is, I work very, very closely with the people element of the production process.

Bringing people's confidence up?

Of course there's that aspect, but there's also the element of breaking down their personal preconceptions of where their limitations are, or why they do what they do. That's delicate, because every artist feels very strongly about how they pursue their craft. But a lot of times I can see that they're limiting themselves, so what I'll do is work on that as a form of pre-production.

Explicitly, or in terms of the interaction?

Both. It's something that happens gradually, ongoing, as the tracks are being recorded. I try to understand where a person's coming from, so that I can find the most translucent way to translate that onto tape. It takes a lot of time, because it's like you're opening a can of worms for them. But on the other side of it is the magic performance.

Everything you're talking about is a main component of producing. But what about engineering—do you find it difficult to do both at the same time?

I've always done both. In a way, it's faster; if you're going to do a tight punch-in, like one letter at the end of a word, in the time it would take to explain that to someone else you could do it yourself ten times. So it's a lot more seamless when I do everything myself. I've been engineering for so long that I don't really think about it that much. It's kind of a drag, because my attention and focus is on both things, trying to maximize the craftsmanship aspect of the engineering, and still having to relate with the artist. So I guess you could say I do it, but it's exhausting. [Laughs]

Do you ever use a click track?

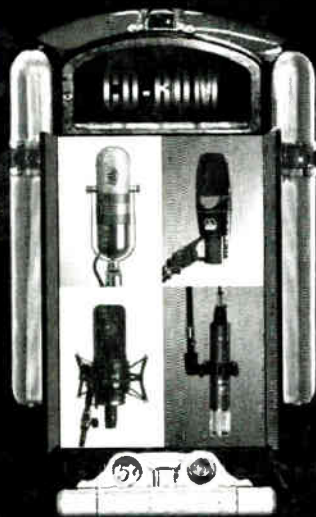
In most cases I use a click track: I'll take something like an MPC-60, run SMPTE

A revolutionary new microphone auditioning tool on CD-ROM!

BE A MICROPHONE EXPERT!

Allen Sides' Microphone Cabinet[®]

FROM CARDINAL BUSINESS MEDIA
also publishers of
MIX[®], *ELECTRONIC MUSICIAN*[®] and *MIX BOOKSHELF*[®]



MIX[®]

Cardinal
BUSINESS MEDIA, INC.

Allen Sides has recorded and mixed sessions for dozens of world-class artists such as Ry Cooder, Count Basie, Ray Charles, Sinead O'Connor and Brian Setzer.

David Schwartz, producer of this CD-ROM project, is the founder and former editor-in-chief of *Mix*.

"The Microphone Cabinet is now a required reference tool for all of our classes. It really shows students the importance of subtle differences between mics, but best of all, I can secretly use it too!"

David Gibson
Founder and Chief Administrator
California Recording Institute

"What a great educational tool! My students can now learn the technical specifications and the sonic characteristics of microphones which normally aren't available to them. With studio time in such demand, it's a great way to get to know the mics before going into the studio."

Wesley Bulla
Coordinator of Recording Studio
Curriculum
Belmont University

"Hey, I got the CD-ROM and it's great! Finally, you get a chance to look in a top engineer/producer's toolbox without having to buy all of the tools."

David Miles Huber
Author and musician

This unique, fully interactive CD-ROM lines up the top classic and contemporary professional microphones for a series of audio comparison tests on dozens of instruments. The disc features:

- A "Selector Cabinet" of both popular and classic mics for recording each instrument.
- 16-bit Red Book audio samples of the selected mics and instruments.
- Allen Sides' "Tips" for getting the best sound from each microphone.
- A high-resolution color photograph of each microphone and the mic placement setup for each instrument.
- Complete specifications for each microphone.
- A color photograph and description of each musical instrument.
- A "Microphone Basics" section by noted author John Woram.
- A directory of the microphone manufacturers.

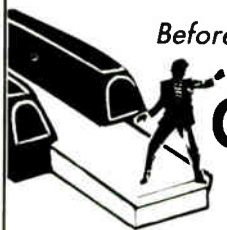
This amazing disc features tests of 66 mics and 33 different instruments. The microphones were chosen from the world-renowned collection at Sides' Ocean Way/Record One studios in Los Angeles. Sort by microphone to check out the best instruments for each, or sort by instrument to see which mics you should use. **Item MC) \$69.95** plus \$9.95 shipping and handling.

Call Toll-Free!

800.233.9604

World Radio History

KEYBOARDS



Before You Jump...

CALL US LAST!

ALL MAJOR BRANDS

- MUSICIANS
- STUDIOS
- BANDS
- SCHOOLS
- CHURCHES

- SYNTHESIZERS
- DIGITAL PIANOS
- RECORDING GEAR
- DRUM MACHINES
- SAMPLERS
- AMPLIFIERS
- MIXERS / EFFECTS

Call Us When You're Ready To Buy!



1-800-795-8493

<http://www.richmusic.com>

1007 AVENUE C • DENTON, TX 76201
FAX (817) 898-8659

USE READER SERVICE CARD FOR MORE INFO

PRODUCER'S DESK

from the multitrack, and run the click off of that, so later on if I feel like I can, to a certain extent, sequence things into the live track. There are some prohibitions about that, because you go and retrofit any kind of sequenced or looped stuff into a live track and it's a lot more iffy about whether it's going to line up than if you do it the other way around. But you can get some great stuff that way—you can sequence keyboards, but even more interestingly, you can do little portions of things that are built around loops or samples and get a very modern sound onto a rock band kind of trip by having access to that. So I try to make sure that I have that option, but some songs just violate the whole click thing completely. It depends very much on the band and what kind of a thing you're going for.

As far as gear, are you a big fan of old tube and analog stuff?

I love everything. I love the one-button Casio chord machines, and I love the full-blown digital editing schematic, too. I find that I get really good results with analog tape recording, although the hiss is always a problem in today's highly competitive marketplace. [Laughs]

Do you use SR?

No, I don't. What I do is use a lot of gain if I want muscle, or low gain if I want transparent highs. And the hell with it—if it sounds better, I deal with the hiss, because I like the analog tape. I use 456, at plus three, which is pretty old-school, but it just gives such a great sound on this Stephens tape machine that it's worth the hiss. It sounds fabulous, it's so fat and rubbery. 456 is like a superball or something—you throw it on the ground and what comes back is even more bouncy.

What's some of the gear you use most often?

I like Telefunken V-76 preamps, I love tube mics—I like a wide range of mics, but I use a U47 a lot, and a Steve Paul-modified U87 that I have. I like Pultecs, once again because they do something a little different. You put a bass through a regular EQ and you put one through a Pultec, and the one that goes through the Pultec comes back sounding rowdier and more energetic, like the person played it with more spirit. How do you define something like that? I use a Roland 880 reverb a lot, and I love the Roland SRV2000 reverb; I don't know what the deal is with them, but they are the best, most hip-sounding drum reverb in the world. It just has that really



Playing with The Deadbeats in 1978

nice tin-can or metal-shack tonality to it that's so supportive of drums. You get short little reverbs that sound really nice.

I use a [Akai] DR-4 a lot for disassembling and re-assembling stuff. I've got the MIDI card and the SMPTE card for that. I inherited two EQs that were hand made by the chief engineer at [the now defunct] Pasha Studios that are just uncanny. And the Stephens is a monstrous tape machine—anyone who's in the Stephens cult will attest to that. I monitor with NS-10s and UREI 811Bs.

The main thing is, my early roots are working with not enough gear, so I've learned how to squeeze every last bit of blood out of every piece. When you go to the last drop like that, you discover these almost occult properties that things have—when you push them absolutely to the limit, they give back more than you put in. I use that principle in a lot of stuff. It's hard to explain. It doesn't work with every piece of gear, you have to know how to use it, but when you strain things practically to the breaking point, new things happen. That's my own personal take on how magic works. ■

FORGE RECORDING STUDIOS VALLEY FORGE, PA



1000 CD's **\$2295**

500 Cassettes **\$799**

Market-Ready Packages Include:

- Full Color Layout & Design
- Mastering & Proof
- 2 color CD screen
- Packaged & Shrink-wrapped

100% Guarantee
No Hidden Extras
Ready in 3 to 4 weeks

These are Complete Packages
Don't Be Mislead by Others!

Call for Free Brochure & Demo

1.800.331.0405

<http://www.ForgeRecording.com>

Precision Series™ Power Amplifiers



1,400 W into 4 ohms



900 W into 4 ohms



550 W into 4 ohms



Dynamic Signal Processing™

The Electro-Voice Precision Series™ power amplifiers were engineered to maximize the performance of the best, most powerful speaker systems in the world—our own.

So we didn't compromise.

Precision Series™ amplifiers feature the most innovative performance and protection circuitry available.

And they're built to last...long after other amps have been recycled.

To ensure this level of performance and reliability, we subject every circuit in every amplifier to the most demanding test parameters in the industry...

but the most important test can only be provided by you.

Call 800/234-6831 for a demo, a brochure and all the details you need.

Designed to Please the Two Most Stringent Testing Devices...



SEE US AT AES BOOTH # 311

Electro-Voice, Inc. a MARK IV company 600 Cecil Street Buchanan, MI 49107 616/695-6831 In Canada: 613/382 2141

USE READER SERVICE CARD FOR MORE INFO

World Radio History

RECORDING NOTES



PHOTO: RANNA

TORI AMOS

IN THE STUDIO AND ON THE ROAD

by Bryan Reesman

Dynamic singer-songwriter Tori Amos is currently receiving some well-deserved attention. As a brilliant stage performer, lyricist and keyboardist, she has transcended the rules of pop music by implementing her classical background within the supposedly more confining rules of rock. Her ability to improvise within her work adds another level to her performances, instilling her songs with new life and allowing audiences to see another side to her music.

Her most recent album, *Boys for Pele*, features her agile piano, harpsichord and

harmonium playing, breathy vocals and characteristically cryptic lyrics, which continually befuddle critics who should probably spend more time listening to the music itself rather than dissecting her purposefully puzzling poetry. "It's like a novel to me," Amos says of the album. "It's the descent of this woman to find fragments of herself, and the record is very much in order of how the songs wanted to be presented. They made it quite clear to me in the recording where they wanted to go."

Boys for Pele was recorded, per the liner notes, "at a church in Delgany, County Wicklow, and at a wonderfully damp Georgian house in County Cork, Ireland." Mark Hawley and Marcel van Limbeek engineered the disc, which Amos produced.

The same team also handled the sound on Amos' most recent tour, in which she traveled the world with just her keyboards and a guitarist.

"It was her idea to record in a church," Hawley recalls. "Ireland was just a nice place to do it. We went around to ten or 15 churches, but we didn't have a lot of time to make up our minds, and it was this one that sounded the best." But it did surprise them in one way. "When we went there, it was really quiet, but realistically, there was this really busy road right down from the church. So I can hear the cars on the album, on a couple of tracks. They're very, very quiet, but I can hear them."

Considering the irreverent spirit of Amos' music, a church was an unlikely recording location, especially when one listens to her "unwholesome" lyrics. Yet the church provided her with the atmosphere she desired, not to mention some unusual recording situations. "We went to this church in Delgany and set up all the gear there," recalls Hawley. "We tried to set it up so she had the freedom to perform as she wanted to. She would just go in for two or three hours at a time and just play, basically. The church in Delgany was a beautiful acoustic [space], and I think the piano and harpsichord sounds are great for that. The thing that was compromised a little bit was the vocal, on the grounds that she performed in a little box."

"A little box" is understating things a little: Hawley and van Limbeek designed a wooden booth that housed the front ends of both the piano and harpsichord, with enough space between the

—CONTINUED ON PAGE 304

SIMON TASSANO

THE PRODUCER
AS ATMOSPHERIC
TECHNICIAN

by Bryan Reesman

Simon Tassano possesses both refined and simple tastes. He's someone who appreciates non-lyrical, improvisational music but also has an affinity for plain old good tunes. Whether producing a Welsh reggae song, an ethnic fusion jam, or engineering a live mix of folk music, the producer and engineer has become notable for his clear, well-defined mixes and attention to the atmospheric qualities of music, whether outlined by the music itself or by environmental sounds that he insinuates into the mix.



PHOTO: MARK CRACE



PHOTO: EGON

Trance Mission (clockwise from left): Beth Custer, Kenneth Newby, John Loose and Stephen Kent

Recent production chores have landed him in the ethnic fusion realms of artists on the eclectic San Francisco-based City of Tribes label. Tassano has worked out a careful balance between maintaining production slickness and capturing the earthy tones of the ethnic instrumen-

tation of Trance Mission, Beasts of Paradise and other artists. His recent credits on the label include producing the second and third Trance Mission albums (*Meanwhile...* and the new *Head Light*), some songs on the second *Event Horizon* compilation, and the Beasts of Paradise full-length debut *Gathered on the Edge*.

Tassano became involved with City of Tribes years after

—CONTINUED ON PAGE 311

"SUBPLAY"

NEW YORK'S SUBWAY
MUSICIANS IN THE
STUDIO AND
UNDERGROUND

by Evan Ambinder

It's no secret that New York City is a musical Mecca for performers, producers, recording engineers and music-lovers. Almost any kind of music can be heard day or night in jazz clubs, rock halls, opera houses and recording studios. But beneath the concrete foundations, aging water mains and sprawling copper wires lies a very different kind of performance space, one that doesn't feature a Meyer P.A. system, a carefully designed concert hall or an

SSL console: New York City subway stations.

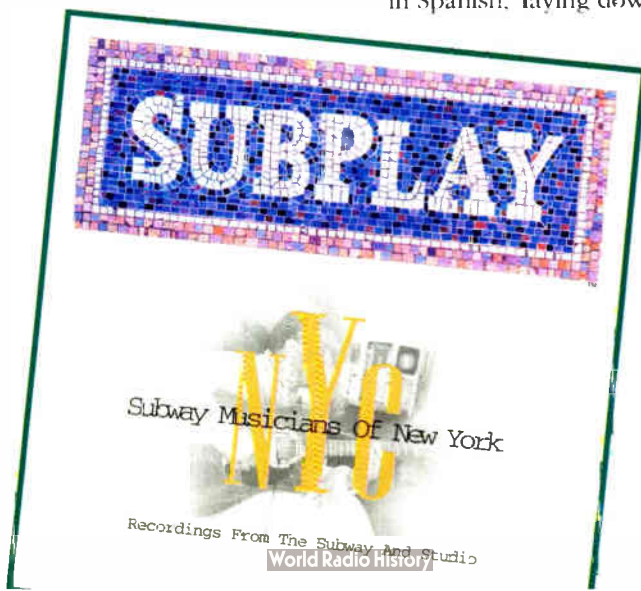
Every day, as tens of thousands of passengers shuffle underground to ride the rails, musicians from around the world

perform against tiled walls and on concrete platforms, pouring their hearts and souls into every note they sing and play. Whether they are strumming a classical guitar and singing about love in Spanish, laying down

a Clyde Stubblefield-inspired groove, or drawing a bow across an erhu, these professional musicians, who rely on the cavernous acoustics of the subway station rather than on an SPX90 for reverberation, represent a unique part of New York's diverse musical culture. And for New York producers/musicians/composers Jamie Propp and Adam Chalk, it's a culture that was well worth spending the past two years documenting.

The resulting CD, *Subplay: Subway Musicians of New York—Recordings From the Subway and Studio*, was recently released nationwide. Comprising ten studio tracks written and performed by New York City subway

—CONTINUED ON PAGE 312



JACKSON BROWNE'S "THE PRETENDER"

by Blair Jackson

Remember "The L.A. Conspiracy"? That was a tongue-in-cheek term in wide circulation in record biz circles in the '70s to describe a group of musicians and songwriters who seemed to be part of some sort of grand plan hatched over expensive weed in Laurel Canyon to take over the airwaves and the *Billboard* charts with mellow country rock and introspective ballads. This den of plotters was amorphous enough to include a passel of up-and-coming and established singers, songwriters and bands, including The Eagles, Jackson Browne, J.D. Souther, Linda Ronstadt, Warren Zevon and Andrew Gold, to mention a few. The group also came to include L.A.'s A-list session pros, including Bob Glaub, Craig Doerge, Russ Kunkel, Danny Kortchmar, Lee Sklar, Waddy Wachtel and a dozen others.

True, many of the good folks listed above had come out of the same L.A. folk scene

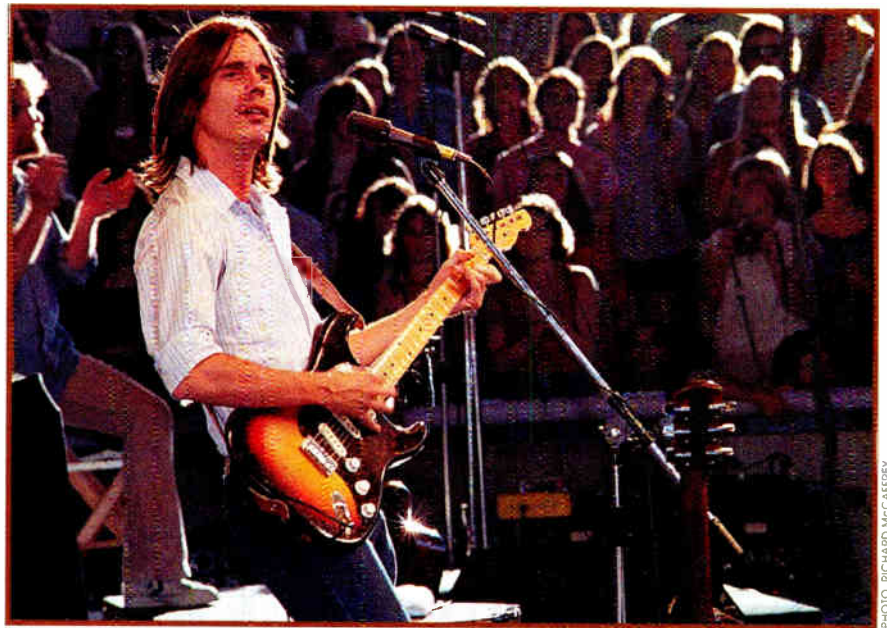


PHOTO: RICHARD MCCAFFREY

cians short, as any close examination of the music they made reveals. Ronstadt covered songs by Zevon, but didn't sound anything like the Excitable Boy. The music of The Eagles and Jackson Browne didn't have much in common except for the fact that "Take It Easy," penned by Browne and Eagle Glenn Frey, appeared on The Eagles' first album and Browne's second.

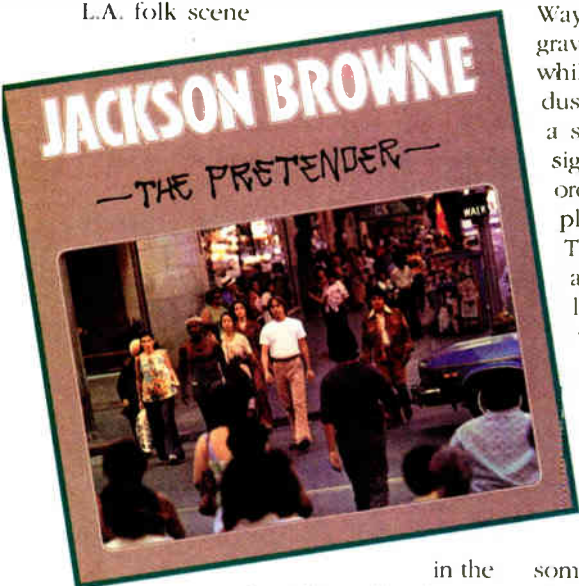
Jackson Browne grew up in John Wayne country—Orange County—but gravitated to the Hollywood folk scene while still a high school lad. Music industry types recognized his gift as a songwriter very early on; he was signed by Billy James to Elektra Records' publishing wing and managed to place songs he wrote on albums by Tom Rush, The Byrds, Bonnie Raitt and others before he became established as a singer-songwriter himself with his debut album in 1972, *Saturate Before Using*. (Hold your cards and letters—I know it was technically called *Jackson Browne*.) That record and his second album, the still-spellbinding *For Everyman*, established Browne as one of music's most insightful writers,

someone able to take highly personal themes and somehow make them seem universal. His third record, 1974's *Late for the Sky*, remains one of the finest albums about relationships, loss and personal growth ever made. And running through each of those records are broader themes about the human condition and where we're headed as a civilization—fortunately, he would never articulate those themes as obviously or clumsily as I just did; he's the poet, not me.

Browne's popularity increased with each album through the early '70s, helped by a combination of FM radio-friendly songs like "Doctor My Eyes," "Redneck Friend" and "Fountain of Sorrow," and Browne's strength as a live performer—he toured often, always with a crack band (dominated by guitar phenom David Lindley), and he tirelessly played benefits for an astonishing number of Good Causes. He was the right guy at the right time with the right attitude—a mixture of self-awareness, self-deprecation, hip humor and a modicum of political savvy, all hallmarks of '60s-moving-through-the-'70s consciousness.

From his first album, Browne always looked to seasoned audio engineers to help him commit his vision to tape in the studio, and each of his early records succeeds on its own merits, while not exactly breaking any ground sonically. For *Saturate Before Using* and *Late for the Sky*, he was aided mainly by veteran Al Schmitt; on *For Everyman* and the 1976 album *The Pretender*, the source of this month's Classic Track, his most important studio partner was the highly respected engineer John Haeny.

Haeny, who for the past decade has done film sound design and facility design for Todd-AO, first met Browne years before the singer's first album was recorded. Haeny's long and winding career path had taken him from work as a cinematographer also interested in sound and recording in his native Minneapolis in the early '60s, to a series of high-profile engineering positions in Los Angeles and San Francisco. After landing a job at United Western Studios in L.A., he moved to S.F. and worked at



in the late '60s and early '70s, which was largely based around Doug Weston's venerable Troubadour club on La Cienega Boulevard. Some of them were friends who had lived poor together before the record companies came a-courtin'. And yes, they did write songs together in the early days, and they had a habit of showing up on each other's albums, usually singing backup harmonies. But the L.A. Conspiracy theory sold each of these writers and musi-

Coast Recorders, where he engineered many sessions for acts signed to Tom Donahue's Autumn Records label, as well as other bands. His next move was back to Hollywood and a brief job as "house hippie engineer" at RCA Studios, before going back to United Western. He was Elektra Records' chief engineer for three years and helped the label build its West Coast studios. Then he worked for Sunset Sound for a while before becoming one of the most successful independent engineers in Southern California.

Though Browne and Haeny had been good friends since Browne's days as a scuffling songwriter in the Elektra stable, and they'd worked well together on *For Everyman*. "By the time we got to *The Pretender*, I'd taught him how to do some things like composite vocals, and I couldn't stand working with him any more because everything took forever," Haeny says. "[On *For Everyman*] we'd record ten tracks of vocals, and then he would sit at the console and I'd let him push the buttons, I'd go outside and smoke cigarettes and try to keep out of his hair. By the time *The Pretender* came around, I essentially just shot the live tracks for him, because acoustic music and live recording was always my stock-and-trade. So basically I was the hired gun who came in and did all the tracking for him."

Work began on the album on March 1, 1976, at Sunset Sound, and Haeny says that "knowing the way that Jackson works, probably the first song he had was 'The Pretender.' In those days he was pretty much a concept writer, being a poet. And I think he had a handle on the name of the album being *The Pretender* and the lead track being 'The Pretender' from the start."

Certainly "The Pretender" was the strongest song Browne had finished since *Late for the Sky*—it sat comfortably in the line of such somber philosophical musings as "For Everyman" and "Before the Deluge," the songs that occupied the last-song slot on his previous two outings. Lyrically, "The Pretender" is dark and laced with self-doubt and cynicism. The protagonist wrestles with his idealism in the face of a culture obsessed with greed and, sadly, resigns himself to being part of that commercial world he once abhorred: "I'm gonna be a happy idiot and struggle for the legal tender," he sings, wistfully adding that "true love could have been a contender/Are you there? Say a prayer for The Pretender/Who started out so young and strong only to surrender..." Bummer. Fortu-

nately, Browne was never *too* believable as the character in the song; his idealism has always shone through the veils of disillusionment, and the album's lead-off track, "The Fuse," was as hopeful as "The Pretender" was despairing.

For the first time on any album, Browne chose a non-engineering producer to help him make *The Pretender*: Jon Landau had the big industry buzz surrounding him after he shepherded Bruce Springsteen (whom he manages to this day) through the making of the brilliant and critically lauded *Born to Run* album, released in the fall of 1975. It's not exactly clear what expertise this former music critic brought to his work with Browne, but Haeny notes that "Jackson, being ultimately insecure, would select people to mentor him through the process as an additional opinion. Did I view Landau as the producer of the record? No. Was he around? Yeah. Was Jackson talking to him? Yeah. Was he getting his face in various things? Yeah. Did I listen to him for direction? No way. In the end, nobody can tell Jackson what to do. He'll listen to what you have to say and then he'll do whatever he wants. Jackson was always the final word."

Haeny says that the tracking for the album went fairly well and that "it was pretty much a band album in terms of the approach to recording, just using a variety of heavy hitters, depending upon who Jackson thought stylistically fit in with the song the best." This particular basic track had a small band on it: Craig Doerge on piano, Jeff Porcaro on drums, Fred Tackett on guitar and Bob Glaub on bass. Speaking generally about the process of getting basics with Browne, Haeny says, "It was not a quick process. I did lots and lots of albums with people that came in and nailed it in two or three takes. And then there were people who went on endlessly. I don't remember Jackson as someone who went on endlessly, but I would say he was someone who could go on *repeatedly*, which means we might go up to six, eight, ten, 12, 14 takes and then put it to bed. Then, if he felt we didn't get it, he'd come back to it with a fresh approach, and sometimes a different band, a couple of days later."

Haeny had recorded *For Everyman* in Sunset Sound's Studio 1, but for *The Pretender* he moved into Sunset's Studio 2, which he describes as "a lovely sounding room. Studio 1 was the main vein of that studio. That's where the classic Bruce Botnick stuff was done with The Doors, 'Happy Together' by

OCEANWAY NASHVILLE ON MUSIC ROW

NOVEMBER 1996

A Company of
**HOUSE OF BLUES STUDIOS
AND
OCEANWAY RECORDING**
FOR BOOKING INFO.
GARY BELZ
818-990-1296

USE READER SERVICE CARD FOR MORE INFO

The Turtles, all sorts of big records. I also worked there for a long time. But Studio 2 is a room that I had a significant impact on. It was a bigger room with a higher ceiling and a warmer sound. At that point in time, we'd just put in a new API console. Sunset Sound was all Deane Jensen/API stuff then. That control room was a departure in that George Augspurger and I had done a three-way, bi-amped JBL system. The Elektra facility I built was the first solid-state facility in the United States, and Alan Emig and I had put in a bi-amplified, softfitted, three-way, non-horn monitoring system which was, to the best of my knowledge, the first of its kind in this country." Sunset 2's monitor system represented an extension of those ideas.

The mics that Haeny used in those days "were all the microphones that people would now give their lives for—47s, 48s, Elam 251s. Sunset had one of the best collections of what is to this day one of my favorite microphones, the old Sony C37A. They were great for many things—I'd use them for violins, for acoustic guitars, for drums." Often Haeny would use three 37As for drum overheads, "adopting a left-center-right perspective. But the center mic wasn't centered over the drums; it was forward over the front toms." Typically, Haeny might use a pair of 251s on the piano, and for bass do a combination of direct and a U87. Another mic he liked was the old Altec 633 "salt shaker" on bass drum. For lead vocals, he usually used a 47 or 48.

"I had the classic UA tube compressor/limiters and some Pultecs for outboard equalization," he says. "I also had the silver Langs [for EQ]. I wasn't excessive with any of it." For reverb, "Sunset 1 had a small chamber that was magical, and Bruce [Botnick] used that a lot during his great days there. In Studio 2, though, we had AKG BX-20s, and EMTs were around. They were very sweet and lovely, which I find is an odd thing for me to say about springs and plates." The sessions were recorded on an Ampex 1100 24-track. "That was not the popular choice for machines then, but we'd done a little souping up of the cards on them, and they were by far the best multitrack recorders, in terms of sound, available in those days," Haeny says.

After the initial tracking, Sunset engineer Mark Howlett took over for most of the overdubs and perhaps the all-important string session—David Campbell's moody string arrangement, including a long coda, is one of the key elements that made "The Pretender" so

powerful musically. (Haeny wasn't sure if he did the string date or not, and I was unable to locate Howlett.)

Originally, Val Garay, one of the city's top engineers, was hired to mix *The Pretender*, but for some reason that didn't end up happening, so Garay's second, 24-year-old Greg Ladanyi, went to Browne and said, "You should let me do this," Ladanyi remembers, "and he basically said, 'Okay, let's give it a try.' I had spent a lot of time in the Sound Factory with David Hassinger mixing from 1 o'clock till 5 o'clock in the morning, after the client sessions were over, and I used to do a lot of mixing for various bands—this was my way of getting out of that [assistant engineer's] seat quickly. So I did a mix and Jackson liked it, and if I remember right, I think he also had a couple of other people try some mixes, but he ended up deciding to use me to mix the album."

The album was mixed at the Sound Factory on an API console, and while Ladanyi agrees that mixing sessions with Browne could be laborious, "He and I got along great. I was always able to maintain some kind of tempo with him where the mixes didn't take months to do. He has a great mind for what he wants to hear, so at the beginning, it was just a matter of us educating each other about what we like and don't like."

Ladanyi says that he used relatively few effects on the mix—mainly just some plate reverbs and that era's trendy gizmo, the Aural Exciter, which "cleared up the upper high-end harmonic distortion.

"I tried to emphasize with Jackson that the sound of the record was really important, and I think maybe on his earlier records he'd been a little more concerned with the songwriting and the performances," he says. "With *The Pretender* album, I think there was more time spent getting the sound right. The guitar sounds and drum sounds were more pristine than they'd been on his previous records. I don't remember having to do much EQ on the record; there was some, but most of it was recorded really well [by Haeny and Howlett]."

In contrast to Haeny's evaluation of Jon Landau's role, Ladanyi comments, "Jon was always there for support for Jackson, and I remember times when Jon would say, 'I'm sorry, Jackson, this just isn't happening; you've got to look at this.' And he would say it in such a way that Jackson would listen to him. I think he had a very important role in the album. Jon took a lot of responsibil-

ity, and he was able to keep Jackson focused and pointed in the right direction; not so much telling him what to do, but saying, 'Hey man, I think you can make that better.'"

The Pretender was an instant hit when it was released in November 1976, largely due to the strength of the title track, which was an FM radio smash. The first single from the album, "Here Come Those Tears Again," made it to Number 23 in early '77, but as a single, "The Pretender" peaked at only Number 58 that spring. It didn't matter: *The Pretender* became Browne's first Platinum album, topping off at Number Five on the charts and ushering in an era of mega-stardom that would last for several years. Ladanyi went on to co-produce Browne's next two albums and mixed the two after that, and they remain friends to this day.

Browne's career has had its ups and downs the past decade, but creatively speaking, he's on a roll these days: His last two records, *I'm Alive* and *Looking East*, are my favorite of his albums since 1978's *Running on Empty*, and his current band is also his best since the late '70s. And he's *still* fighting the good fight for all the right causes. ■

—FROM PAGE 300, TORI AMOS

instruments for Amos to sit and perform and switch between them. This small structure helped the engineers avoid any crossover between the vocal, the two instruments and the natural reverb of the church. "Her attitude toward that is she didn't mind what she had to put up with as long as we could record her live," Hawley says.

The new album possesses a warmth that can be attributed to both the acoustics of the church and the overall recording setup. You can even hear the hammers hitting the strings in the piano. It's an intimate feeling that Amos wanted to capture, like "when I try to stick my head inside the belly of the piano," she states, "or try to stick my head inside the harpsichord. I wanted you to hear it how I could hear it. The piano hopefully goes inside of your stomach. When you put it on a decent hi-fi, you should be able to crank it up and it should just crawl into your capillaries."

As intimate as her piano sound is her vocal performance, which is particularly noteworthy for its wide range of emotion and dynamics. "She's so particular about her vocal sound," Hawley says, "and being able to hear the real-

MIX

1995

January 1995

Recording • Liz Phair • Rolling Stones • Touring Console Buyers • Tour Managing and Mixing • Star Trek Generations • Audio on Internet • Mark Mothersbaugh

February 1995

Developments in 3-D Audio • British Producers • Mixing With MIDI • Mixing Studio Monitors • Eric Clapton • International Touring • Alan Splet • Shelly Yakus

March 1995

Recording Percussion • L.A. Recording • Brooks Arthur • Merger • New Microphones • The Chieftains • From Recording School • Live Wireless • Pat Metheny

April 1995

Video for Radio • Dealing with Dealers • Walter Becker • Sound For Picture Supplement • Chris Jenkins • ISDN Explained • Super Bowl Sound

May 1995

Sound Reinforcement • British Studios • Producer Flood • QuickTime Audio • Sound Reinforcement Speakers • Sound for Film: Breaking In • Sound for Film: Breaking In • Sound for Film: Breaking In • Sound for Film: Breaking In • Sound for Film: Breaking In

June 1995

AS president Michael Greene • Jack Douglas • Joe Lovano and Herbie Hancock • Andy Moor • The Analog Digital Choice • Digital Audio Workstations • ADAT Mod Shootout • Braveheart • Post Production Systems • Gyuto Monks Tour • Laurie Anderson

July 1995

Recording Consoles • Nashville Recording • Recording Consoles • Signaling Solutions • Live Recording Vignettes • Hard Drives for Audio • Sound for Film: Breaking In • Sound for Film: Breaking In • Sound for Film: Breaking In • Sound for Film: Breaking In

August 1995

What's New in Analog • Tom Hidley • Studio Designer's Challenge • Fine-tuning Control Rooms & Tracking Spaces • MTV Unplugged/Tour • Setting Up Your • Setting Up Your • Setting Up Your • Setting Up Your



September 1995

Production Sickness Secrets • Production Sickness Secrets • Production Sickness Secrets • Production Sickness Secrets • Production Sickness Secrets • Production Sickness Secrets • Production Sickness Secrets • Production Sickness Secrets

October 1995

Creating Your Own Web Page • Restoring Vintage Gear • Mixing and Mastering for Radio • Gerald Levert and Tony Nicholas • Secrets of Dither • Warren Zevon • New York Recording and Broadcast • Hans Zimmer • Workstations in Post • Tom Petty - King Crimson Live

November 1995

Rock & Roll Hall of Fame • Engineers Talk About Automation • Computer Networking in the Studio • Chris Isaak • Dave Alvin • BBC TV Centre Studios • Ziggy Marley • Chicago Project Studios and Blues Clubs • Live Sound: Signal Processing in the Age of Computer Control • Hootie & the Blowfish • Sheryl Crow on Tour • Sound for Film: Whither MIX?

December 1995

Alan Parsons • Pro Football Hall of Fame • Canadian Snapshots • Buyer's Guide to CD Recorders • New Developments in Analog Compressor/Limiters • Ornette Coleman • Brian Wilson & Van Dyke Parks • Remastering the Elton John Catalog • Transcription Disc Restoration • Santana & Jeff Beck Tour • John Carpenter

1996

January 1996

k.d. lang and Ben Mink • Remote Recording • Roundup/Protecting Your Hearing • Causes of Tinnitus • Orrin Keepnews • Northwest Report • Richard Beggs • Handheld Vocal Mics • Tour: Bowie & Nine Inch Nails • Casino

February 1996

Greg Mackie • Sampling in the Music Business • 8-Bus Consoles • Paul Fox • Charlie Peacock • Emmylou Harris • Wrecking Ball • State of the Art in Broadway Sound • Springsteen Solo and Acoustic • Music Editing in New York

March 1996

Brian Wilson • Phil Ramone and Frank Filipetti • Digital Assembly Editing for MDMs • What's New in Digital Multi-effects Processors • New Orleans Recording • Cosimo Matassa • Sepultura • Main Touring Loudspeakers • Tour Profile: Steve Miller Blues Band • Film Sound: Heat, and Jumanji • Sound Effects: Stock Libraries and Beyond

April 1996

Engineers on Studio Reference Monitors • What's New in Studio Monitors • Assistant Engineers • Web Audio Goes Real Time • Phil Manzanera • Remembering Buddy Holly • Nick Cave • Adventures in Tape Restoration • Sound For Picture Supplement • Sony Pictures Studios' Michael Kohut • Scoring for Film and TV • Surround Sound in the Music Industry • Remote Recording Interfacing

May 1996

Don Gehman • Grammys on the Web • The Brit Awards • Jeff Lynne • Recording in Cleveland • Cincinnati • Top-of-the-Line Studio Amps • Loudon Wainwright III • Sound System EQ • David Morgan • Earphone Monitoring Basics • Tour: AC/DC • Timecode Caveats

June 1996

Keith Barr • David Bianco • Studio Publicity • Master Preparation • Bruce Bromberg

Jacky Terrasson • Ali Akbar Khan • Recording Acoustic Instruments • Drum Miking, Live and In Studio • New Studio Mics • Wireless Mics • Dialog Editing

July 1996

Mixing Tips and Techniques • Large-Format Consoles • Nashville Recording • Brian Ahern • Russell and Nathaniel Kunkel • Cassandra Wilson • The Pogues • House Sound for the Academy Awards • Tours: Bob Seger, Bush, k.d. lang • Twister

August 1996

Bob Rock • Roy Hargrove in Cuba • Keith Stegall • Merle Haggard • They Might Be Giants • Acoustical Materials • Glenn Phoenix • Kitaro's Studio • Dealing with Comb Filters • Summer Tour Tool Chest • New Summer Venues • Effects Editing for Film

Back Issues OUT

Call Now! **1-800-233-9604**

ORDER INFORMATION

Order MIX back issues, just fill out this order form indicating your selections and send it along with your payment to: MIX Back Issues, 100 Newfield Avenue, Edison, New Jersey 08837. Call toll free 1-800-233-9604 or 1-908-417-9575 or FAX line 1-908-225-1562.

Check or Money Order enclosed Master Card Visa American Express

Order No. _____ Exp. Date _____

Name _____

Address _____

City _____

State or Country _____

Zip or Postal Code _____

Please send me the following issues:

month/year

SPECIAL VOLUME DISCOUNT!

Order four or more issues for only \$7.50 each! (U.S.) • Canada-four or more issues: \$8.50 each • Foreign-four or more issues: \$9.50 each

	U.S.	Canada	Foreign
Price per copy (includes shipping and handling)	8.00	9.00	10.00
VOLUME DISCOUNT (4 or more)	7.50	8.50	9.50
Number ordered	x		
Subtotal	=		
Please add 8.25% tax for deliveries in CA only	+		
TOTAL AMOUNT ENCLOSED	=		

Please allow 6-8 weeks for delivery. All Foreign and Canadian orders must be payable in U.S. funds by International Money Order or by check drawn on a U.S. bank, or include credit card information.

ness and the detail of it. And very rarely is there much reverb or anything on the vocal." Hawley and van Limbeek swapped mics on her vocal on different songs. "Some songs were recorded with a [Neumann] M49 that she owned, and other songs were recorded with her U87s," explains van Limbeek. "And whenever she sang her own backing vocals, we made her sing into anything from an SM58 to an AKG C-414."

The harpsichord also is rich in texture and detail on such tracks as "Professional Widow," on which Amos combines the instrument's tone and an unusual melody to make the instrument sound downright sinister.

Strong examples of the intimacy that envelops the listener throughout the album can be found on its opening two tracks, "Beauty Queen" and "Horses." We can hear Amos sitting at the piano, shuffling perhaps, preparing to play, then quietly beginning the delicate "Beauty Queen," which features fragile, high-pitched singing and sparse piano. The lightly galloping "Horses" picks up the pace for the album and builds to the more edgy harpsichord tune "Blood Roses." "Horses" features a short bridge that shifts to a louder dynamic, and the piano reverberates quite strongly, while still holding on to an ethereal edge. To achieve this effect, the Bosendorfer was played and recorded through a Leslie cabinet, a setup that Hawley and van Limbeek duplicate live, giving the piano an almost organ-like quality.

To record the instruments, Hawley and van Limbeek used two Neumann U87s in a cardioid pattern on the piano and two Neumann KMI40s (also in a cardioid pattern) on the harpsichord, positioned above the bridge (located between the sound board and the strings). To record the main stereo sound for the piano, the engineers used two B&K 4003 omnidirectional mics, one on each side, about ten feet high and five feet apart. To capture more ambience of the space, they placed two more 4003s near the back of the church and farther apart than the main pair.

The mic signal was run through Focusrite preamps straight onto Sony 24-track digital. "We didn't record anything through a mixing console because of the limitations of being on location," says Hawley, although they did have a small Tascam M3900 board for playback.

Hawley and van Limbeek later mixed the album on a Neve VR60 at Jacobs Studios in England. "Everything you hear on the album, apart from the fact that it's gone through a really nice

console, is very much how it was recorded," remarks Hawley. "There was not a lot being done to it."

The recording process was fairly straightforward and uncomplicated considering the subtleties and complexities of the sound design on many of Amos' songs, whether it be the unusual guitar effects of Steve Caton, the interaction of the many electronic and acoustic elements throughout the record or the multitracked vocal passages. Amos records many tunes that would be very difficult to reproduce live without a whole band, such as the first single, "Caught a Lite Sneeze," which features piano, harpsichord, drum programming, multiple vocal tracks, bass and Caton's overdubbed "swells." Live, Amos plays without the benefit of the drums, bass and backing vocal tracks, but it somehow still manages to sound full.

The engineers say that during the recording, there were no actual plans to record a specific song at a set time. For songs with other elements (such as choir, rhythm programming, guitar or sousaphone), Amos would perform the piano and vocal parts first, and the other parts were recorded afterward. If Amos did not get a good take, she'd play another song before returning to it, and this process resulted in many of the B-sides for her singles. "Alan [Friedman], who did all the loops on the album, tried with us a couple of times to get her to play to a loop," Hawley explains, "but I don't think anything got done like that in the end. She would just decide to play the songs. On 'Caught a Lite Sneeze,' the harpsichord, piano and vocal were all done as one take, so there were no overdubs."

In fact, no demos were done for any of the songs on *Pele*. "Basically, two or three songs on the album and many of the B-sides were written as you hear them there," says Hawley. "'Marianne' and 'Not the Red Baron'—the first time she ever played them and the first time we ever heard them was the performance that you hear. The whole recording process was really special for that reason."

During their recording sessions in Ireland, Amos and company recorded some 40-plus songs, many of the extra tracks becoming B-sides on her never-ending stream of singles, including the recent "Talula," which has two versions overseas. In fact, during this interview, Amos, Hawley and van Limbeek were in Boston recording still more B-sides. The singer is prolific, to say the least.

Another reason Amos has developed

such a passionate following is that she is a compelling performer whose passion and warmth translate well onto the stage. For her 1996 world tour, Hawley has worked as the FOH engineer with van Limbeek as the monitor mixer.

The tour has been exciting for both engineers, whose previous experience was exclusively overseas. The British-born Hawley started as a recording engineer in various studios in the north of England and then worked at London's Chapel Studios, which is essentially a songwriting studio. Since then, and before working with Amos, he was FOH engineer on tours for both Curve and the Beautiful South. Van Limbeek, on the other hand, worked in England for sound companies, mostly as a rigger, although earlier in his career, he did a lot of live work in his native Holland, both as FOH and monitor engineer. The duo hooked up for the first time for Amos' *Under the Pink* tour in 1994.

According to Hawley, the overall sound philosophy for Amos' recent tour was that "it can't be wimpy; it should be powerful. It should be a nice, good hi-fi sound, not deafeningly loud. I don't mind if it gets a bit edgy when she screams or if the piano becomes quite loud in some sections, but overall it should be a good listening level."

For the tour, both men use 40-input Midas XL-3 mixing consoles, although van Limbeek also uses a 16-channel stretch (an extension of the Midas board) because of the loops on "Talula," which come from an 8-track hard disk recorder. Hawley says the Midas "is the best-sounding live console I've used."

Despite the fact that the setup onstage seems relatively simple—Amos at the piano and guitarist Steve Caton by her side—the show presents a series of challenges which keep both Hawley and van Limbeek on their toes. Hawley says that getting a clear lead vocal is paramount on this tour, and "that's something that is quite tricky. The main problem with the live stuff is the fact that we have a piano with the lid up. It's not so much a problem getting the piano sound, but the vocals both from the monitors and back from the house go straight into the piano mics, and that's our main problem. In bad venues, it can take a second-and-a-half for the vocal to hit the back wall and get back to the piano."

The duo use the same cardioid mic pairs (U87s and KMI40s) they used on both the piano and harpsichord when recording *Pele*. "There are only a few microphones there, and they're all pret-

Their Wish was OUR COMMAND



T

he Eventide DSP4000 Ultra-Harmonizer brand effects processor won this past year's TEC Award for signal processing. But when we asked the top professionals who inspired the DSP4000 what they wanted in version 2 software, they demanded even more:



KEVIN KILLEN "Give me the power to do everything at once."

"Now I can strap together EQ, digital reverb, pitch correction, and a modulatable delay line with individual mix levels and pan positions in ONE preset! All with totally transparent audio quality so as not to degrade the tone I've worked so hard to achieve. Now THAT's power."

Jude Cole
I DON'T KNOW WHY I ACT LIKE THIS
Produced by Kevin Killen



JOHN & DINO ELEFANTE "We need really good digital compression modules"

"Best digital compressor we've heard yet - we left our own preset up in the machine after one of our sessions, then the people from TNN's "Live at the Ryman" TV series (featuring Pam Tillis, Rickie Scaggs and Reba McEntire) came in and said "Hey, this sounds great." They wouldn't let us take the DSP4000 out of the room!"

John Elefante
WINDOWS OF HEAVEN
Produced by John & Dino Elefante



FLOOD "Can you make the patch editor more usable?"

"You did it! The NEW patch editor is finally really usable in a creative way - whatever I imagine in my head I can now create in the mix - the new distortion modules are fantastic."

Nine Inch Nails
THE DOWNWARD SPIRAL
Produced by Flood and Trent Reznor



Steve Vai
ALIEN LOVE SECRETS
Produced by Steve Vai

STEVE VAI "I want to go beyond effects. I want it to sound real."

"I've always wanted a pitch shift device that would simulate the differences in timing and tone of having two or three other guitarists in the room playing along. With the DSP4000's new software, I can have one voice slightly behind me, one right on top of me, a third drifting between the two, all with their own unique tone, and even distortion - very realistic simulation of multiple players."



Billy Joel
THE RIVER OF DREAMS
Live set engineered by Kooster McAllister

KOOSTER McALLISTER "Make it faster and easier to use. That's what we need in the truck."

"Yes! The new software makes things happen a lot faster. And it's a lot easier to set up. Fewer keystrokes, more intuitive. And the new sampler card is everything you promised. At Record Plant Remote, the DSP4000 is the box we count on most."

DSP4000 v2 MAKES IT POSSIBLE

If you can dream it, you can do it - faster, easier and better - with v2 Software, now playing on the Eventide DSP4000 Ultra Harmonizer processor: 130 effects modules and over 500 presets, all 30% faster and easier to use. Powerful internal sampler option also available. Call Eventide or your DSP4000 pro dealer and get into all it's got.

Eventide
the next step

ty much on the high gain," says van Limbeek, "so the whole sound is incredibly open. This is mainly because the piano lid, which is looking into the audience, works as one big microphone. As soon as Mark changes anything at the front of house, I can immediately tell, and so can Tori. And that works the other way, too—if I change something, he can tell immediately."

Then, of course, there's the harpsichord, which sits behind Amos and the piano. "The harpsichord, even though the lid is facing the other way [upstage]," explains van Limbeek, "is very, very quiet and fragile—the wood is so thin—so the whole thing becomes mi-

crophonic. You can stand next to it and talk and be picked up."

"Any problems with vocal leaking into the piano mics," explains Hawley, "you can quadruple for the harpsichord because it's such a quiet instrument, and a piano is really quite loud. We started out with monitors, but we got more of the vocal from the monitors into the harpsichord mics than we got of any harpsichord, so it just wasn't working, basically." To help Amos, van Limbeek has given her a set of headphones, although they monitor sound in only one ear.

To solve their acoustical problem with the instrument, the engineering

duo placed a plank of wood, with sound tiles on the inside of it, against the lid of the harpsichord to deflect unwanted sound. Luckily, the audience cannot see inside the harpsichord because of the lid.

Another challenge is properly mixing Caton's acoustic and electric guitars. Caton's musical presence adds another level to the show, whether it's his rhythmic acoustic guitar on "Cornflake Girl" and "Talula" or the more ambient sounds he pulls from his electric on subdued numbers like "Little Amsterdam." Caton's pedal box is a Roland GP-8, and he also uses volume, wah-wah and distortion pedals. Caton's amp is miked with two AKG 414s.

"The way Steve works with his equipment really suits Tori's style of playing," says Hawley. "The speaker for the amplifier [for the electric guitar] is offstage somewhere, and he just listens back through his monitors. 'Cornflake Girl' is one of my biggest problems with the acoustic [guitar]. In the piano solo, I can almost turn his acoustic off, because there's so much bleed from the acoustic guitar into the piano mics. That is a bit of problem, and I find it very difficult to get that right. It can be very distracting. And the sound of the guitar isn't that nice when it's coming down the piano mics."

Monitoring the mix for Amos and Caton is also a challenge, given the parameters. "I'm mainly using onstage wedges made by SSE, the sound company we use from Birmingham, England," explains van Limbeek. "It's a two-way active system. They have built-in crossover cards, so that one side of the amplifier is doing the low end, and the other side is doing the high end. Steve is actually listening to just a stereo mix, an FOH-type mix, except that the guitar is more up-front, whereas Tori's vocal is more in the mix. Tori's listening to two stereo mixes at the same time. I've found what I need to do for Tori's vocal is so complicated that I'm using a separate stereo mix for her vocal and the reverb on the vocal. Those are two wedges on either side of her. More to her back is another group of wedges, which is basically stereo piano. When Steve plays, his guitar will also show up in the wedges assigned to the piano."

Caton has two monitors, one for Amos and one for him. "He's listening to the piano pretty compressed," says van Limbeek. "He's got a little Galaxy Hotspot next to him, and all that's in there is either piano or harpsichord, whichever Tori is playing, not her vocal.

ARE YOU PROTECTED?



It happens. You're in the studio, the juices are flowing. You're just getting to the perfect mix...suddenly, your near-field monitors blow. Now you're facing downtime and an expensive repair because burned out voice coils are not usually covered under warranty.

Yorkville's SR-300 studio reference amplifier incorporates our proprietary Speaker Protection Circuitry (SPC) to give your

speakers 3-way insurance. The high pass filter protects against deadly sub-sonic oscillations while a limiter monitors both peak and average output. This protects against spikes and dangerously high sustained output signals. Of course, we can't guarantee you'll never blow your speakers, but the SR-300 will give them a fighting chance.

SEE US AT AES BOOTH # 259

Yorkville SR-300 Studio Reference Amplifier



In the studio, or on the road...

- Silent, convection cooling with side-mounted heatsinks
- Heavy gauge steel chassis
- Toroidal power supply for low induced hum
- Balanced 1/4" phone inputs
- Both 1/4" and push terminal speaker outputs
- Clip, activity and limiter indicators
- 150 W/ch. @ 4 ohms continuous avg. power (stable down to 2." ohms)
- Unbeatable 2 year (EVEN IF YOU BREAK IT!) warranty

Get protected with the Yorkville SR-300 studio reference amplifier.



www.yorkville.com

IN U.S.A.
YORKVILLE SOUND INC.
4625 WITMER INDUSTRIAL ESTATE
NIAGARA FALLS, NY 14305

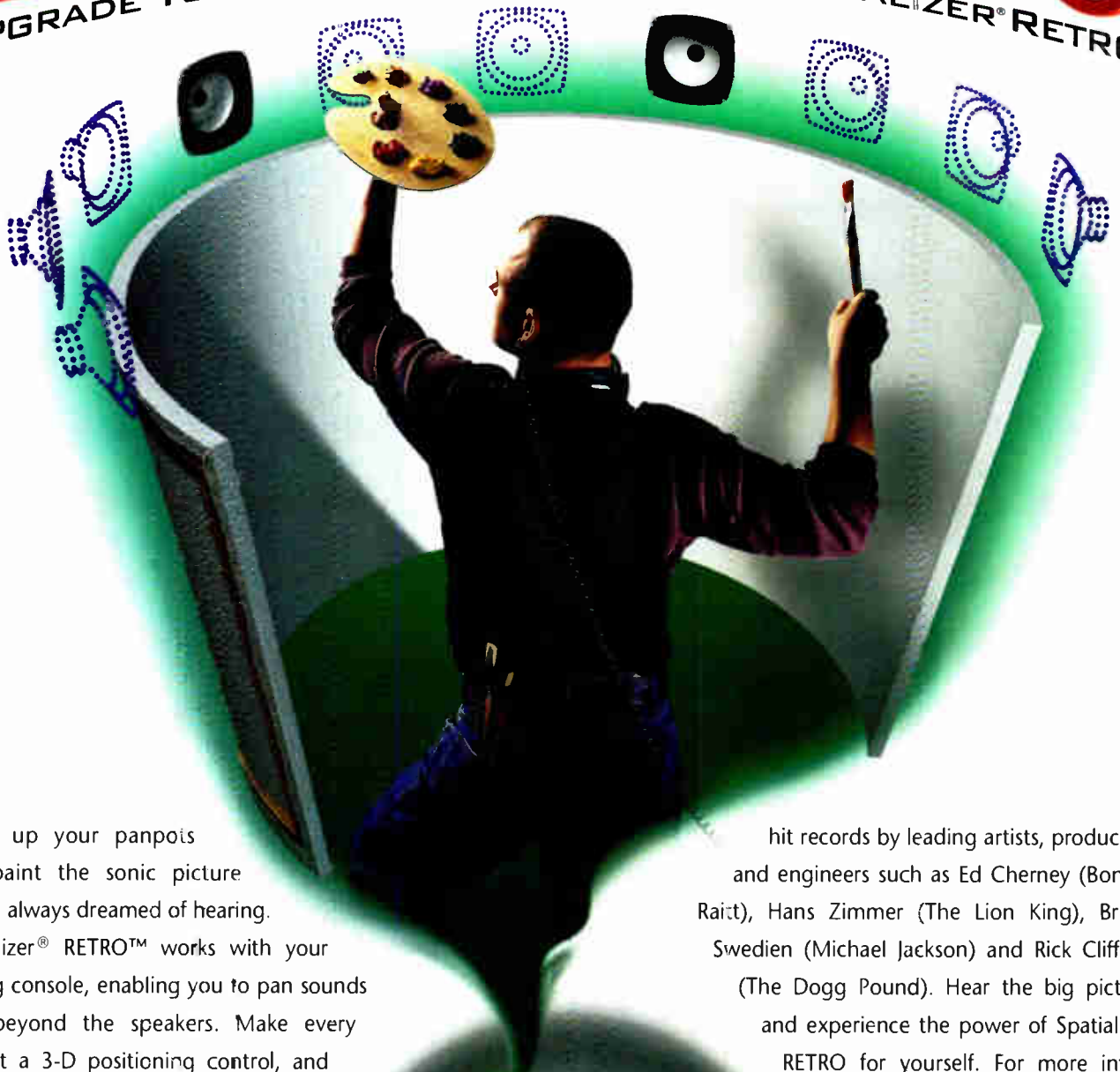
IN CANADA
YORKVILLE SOUND LTD..
550 GRANITE COURT
PICKERING, ONT L1W 3Y8

USE READER SERVICE CARD FOR MORE INFO

World Radio History

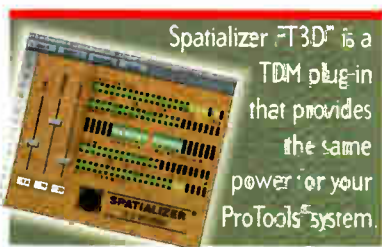
EXPAND YOUR CANVAS

UPGRADE YOUR CONSOLE TO 3-D WITH SPATIALIZER® RETRO™



Crank up your panpot and paint the sonic picture you've always dreamed of hearing. Spatializer® RETRO™ works with your mixing console, enabling you to pan sounds way beyond the speakers. Make every panpot a 3-D positioning control, and create a clear and powerful mix so BIG, it virtually wraps around you. Spatializer is a proven technology used on numerous

hit records by leading artists, producers, and engineers such as Ed Cherney (Bonnie Raitt), Hans Zimmer (The Lion King), Bruce Swedien (Michael Jackson) and Rick Clifford (The Dogg Pound). Hear the big picture and experience the power of Spatializer RETRO for yourself. For more information call our toll-free number: (800) 470-7281 or visit our Web site. Also available at select music dealers.



Spatializer T3D™ is a TDM plug-in that provides the same power for your ProTools system.



SPATIALIZER®
RETRO™
(paint not included)



Desper Products, Inc. • (415) 428-0400 • Web site: <http://www.spatializer.com/> • e-mail: retro@spatializer.com

©1996 Desper Products, Inc. Spatializer® and Spatializer Retro™ are trademarks of Desper Products, Inc. All other corporate and product names are trademarks of their respective owners.

USE READER SERVICE CARD FOR MORE INFO

PURE CLASS A HIGH END OUTBOARD

Preamplifiers Equalizers Compressors Mastering Systems Crossovers, DI's



CALL FOR INFORMATION OR CONTACT YOUR NEAREST STOCKING DEALER FOR A DEMONSTRATION;

EVA SYSTEMS
Rentals & Sales
818.557.7605

HARRIS AUDIO
305.944.4448

UNDERGROUND SOUND
615.242.2442

WESTLAKE AUDIO
713.851.9800

STUDIO TEK
214.358.0050

WIND OVER THE EARTH
303.443.9822

US Ultra-five
Class A
Instrument
DI Box

AVALON DESIGN

P.O. BOX 5976 SAN CLEMENTE, CA 92673 USA TEL: 714.492.2000 FAX 714.492.4284

World Radio History
USE READER SERVICE CARD FOR MORE INFO

If he gets into a problem, especially timing-wise, it's hard for him to look back at me and say, 'I need more piano.' So he's got this little Galaxy Hotspot, which is nothing but a trashy little speaker, but he can turn up the piano, harmonium or harpsichord from there in case he does need it." The Hotspot is placed on a mic stand, whereas the speaker with his main mix sits on the floor, and "that contains everything."

Van Limbeek's positioning offstage is also important. "I'm on stage-left," he says, "so when Tori's playing piano, she can look me in the face, and I can usually tell from the way she looks what the score is, whether she's happy or not. She has a few signs she can give me."

Such an involved show requires plenty of teamwork, and Hawley and van Limbeek have risen to that formidable task each night at a variety of different-sized venues. "Especially in smaller venues, when you sit in the first few rows, what you hear is a good crossover between sound coming offstage from the monitors and the P.A.," states van Limbeek, "and to keep the whole thing consistent, it's pretty important that Mark and I use similar compression ratios. The smaller the venue, the more Mark and I have to work together. If we're playing in a real theater designed to stage plays or whatever, usually we have a proscenium arch and a stage-house, which for us is usually ideal, since we're more separated. Whereas, if we play in a traditional concert hall, where the stage is really in the same room as the auditorium, then the whole thing becomes a lot more open and we have to rely a lot more on each other." ■

—FROM PAGE 301. SIMON TASSANO

engineering the first album by Lights in a Fat City, a group consisting of his friend Eddie Sayer and future Trance Mission member Stephen Kent, a didgeridoo player. Their 1988 debut, *Some-where*, on which Tassano also contributed effects and atmospheres, was recorded and mixed in just four days. Thus began a working relationship between Tassano and Kent, which led to several studio projects, predominantly contemporary dance soundtracks with Kent as musical director and Tassano as engineer/co-producer. "I can think of no other producer/engineer with whom I feel such an affinity," Kent says.

Tassano has worked for folk legend Richard Thompson over the past 15

years as both live engineer and tour manager. He has also worked for John Hiatt, Kate and Anna McGarrigle, Los Lobos, David Lindley and many others. "I always seem to end up with guitar players," he muses. Tassano once again went on the road with Thompson on a two-month national tour that started in September.

But it's Trance Mission's latest release, *Head Light*, that has Tassano talking animatedly this afternoon. The CD continues the group's tradition of creating exotic world fusion, this time with stronger African influences. As always, the pulse of the quartet's work comes from their integration of Middle Eastern, African, folk, jazz and other music into a captivating aural stew of timeless, primal sounds. The group creates their sound through an exotic variety of instruments—including ethnic percussion, didgeridoo, clarinet—and digital effects.

Much to his regret, Tassano was not able to be present for the recording of the basic tracks of *Head Light*. Christian Jones of San Francisco's Mobius Studios handled those sessions. "I enjoy working with Christian," Tassano says. "He was also my engineer on the tracking sessions for Beasts of Paradise so I could concentrate on performances rather than levels." Tassano came in for overdub sessions for the record and engineered the mix and produced it from that point onward.

"That was interesting since he was completely fresh to the material," remarks Kent. "We had had a very intense writing and rehearsal period of about a week, in which most of the pieces were pretty clearly formulated, followed by a week of tracking. We had six days to mix. We were very clear that we wanted *Head Light* to have a more present sound quality than *Meanwhile...*, and all told I think that the compositions are leaner and more direct."

Head Light was recorded 24-track analog on Mobius' Neve 8068 console. Mixing was done at Coast Recorders, also in San Francisco, on an all-discrete custom Neve 5305 with GML automation. To record the various players and their large number of instruments, Tassano and Jones used a variety of microphones, including several Neumanns—U47 (both for the didgeridoo and the vocals of guest singer Eda Maxym), U87, KM84, KM85, KM81 (clay pot and hi-hat) and KM54—and others including an AKG 112 (kick and orchestral bass drum), Shure SM57 (snare), Telefunken 251s, Sennheiser 421s (toms and hand percussion) and B&K 4006s. "On the

whole, cardioid position was used," Tassano says. "The B&Ks were often used as overhead ambient mics."

"I particularly like the tube mics for picking up the very acoustic sounds of reeds, voice and some of the softer percussion with less attack," Tassano says. "The 251s are great for ambience-miking percussion, as the top end is gentle and not too 'fierce.' Likewise for the clarinet—especially the B-flat clarinet—as it can get very thin on the higher notes."

Other than the technical details, the challenge of working with a group like Trance Mission is their very spontaneous, improvisatory nature. "Often what happens is that three or four of them will go down live together," Tassano explains. "There may be some clarinet and didgeridoo and some percussion, and once that's down, that's the basis for the whole thing."

"Most of the pieces were built from the rhythm section [John Loose and Kenneth Newby play percussion] upwards," adds Kent. "followed by didge, digital atmospheres, cello and Kenneth's wind playing, with Beth Custer's input [clarinet] usually the last to be formulated. This format applied to the recording of our last two projects, whereas in the case of our first CD we pretty much performed and recorded live in the studio."

"One of the reasons we use Mobius is the main studio room has two iso booths," says Tassano. "Having isolation booths is really important because obviously here you're dealing with instruments that have a huge dynamic range within them and between the instruments themselves." At the same time, Tassano says, he sometimes uses bleed-through to his advantage: "It can add an ambience you can't capture any other way. I do also like to use the natural ambience of the studio in quite a few places. I'll put a speaker out into the studio and put a couple of mics up and send stuff on an auxiliary bus out to the speaker in the studio and then have a stereo of the two mics coming back into the mix."

One cut on *Head Light*, "In Frog Py-jamas," even features some outside street ambience that was recorded live during mixing. "We put a stereo pair out into the street. I was real insistent that we didn't record it and just play the same bit every time with the mix. I like to inject a little chaos. In this kind of music, you can do that."

"With this kind of music, especially, arrangements tend to start happening in the mix," he continues, "because not being in a straight song format, there's a

lot of stuff going on all the time. When you get these tracks that are pretty full, the trick is to weed them out, to give them form, to give them shape. Since this isn't verse-chorus-verse-chorus-middle-out, you can take the palette of all these colors that are being laid down and say, 'Let's make this more happening, let's drop the drums out here or let's not bring this sound in here.' You have an infinite amount of control, depending upon how much time you want to spend on it."

One of Tassano's main goals in mixing is to make sure that every instrument has a clear, distinct place in the fabric of the music, and to that end, he says, "I like using lots of processors. Lots of reverbs, bits of echo, to give everything its individual space and make them work with each other." His main processors on *Head Light* were a Lexicon 480, the TC Electronic M5000 and two Eventide UltraHarmonizers, the 3500 and 4000.

"The group was attracted to the sense of space that Simon can create around each instrument and the music as a whole," says Newby. "He's very open to the collaborative process so that both tracking and mixing were very much a team production effort. Since both John Loose and I are quite involved in the production of our own and other people's music, the level of in-studio technical and production expertise within the group is quite high. This means we can communicate clearly and effectively with each other when building up a track."

"Simon himself is an excellent musician," Kent adds. "However, his instrument is the mixing board/studio, on which he is a virtuoso. He works excellently in collaborative situations, bringing the best out of both the music and the musicians, and he has an intuitive, as well as technical, overview of the whole that I think entirely complements the views of the composers. His ability to position sounds in the mix [in a way] that lets each instrument shine in its own aural space is amazing!" ■

—FROM PAGE 301, "SUBPLAY"

musicians and 11 musical segues of additional performances recorded live on subway platforms, *Subplay* is a compilation of music as diverse as New York: from soul, R&B, jazz and Latin ballads to pop, rock, New Orleans blues and Chinese classical. In addition, the album is presented as a musical ride up-

town on the Broadway line, complete with trains rumbling, brakes squealing and an actual subway conductor announcing station stops in between each studio cut.

Subplay was born, appropriately enough, during a subway ride a few years ago while Propp and Chalk were home on winter break from the University of Miami School of Music. "These two guys, who we later found out were called B&G, burst through the car and put a smile on everyone's face by singing this spiritual called 'This Little Light o' Mine' and jiggling a cup of change for percussion," Propp says. "It was at that point the light bulb went on and we said, 'This would be an incredible project,' because there's such a diverse selection of talented musicians down there." Although subway musicians had been recorded before by other producers (and primarily in the subway), Propp and Chalk decided early on that they did not want to make just an album of location recordings, because that would have limited the album's commercial appeal, not to mention its ability to jump-start the performers' recording careers. So they brought the most talented subway singers, musicians and songwriters into recording studios, their respective homes and a church—and produced radio-friendly songs.

"We began working on this record in the summer of '94 by spending a few days a week looking for artists," Propp says. "After scouting talent for a while, we realized that there were people who had something to say with their music, an urgency that made people want to stop and listen. We befriended them, started hanging out with them and got to know their music and backgrounds intimately. This not only introduced us to music from all over the planet, it also helped us to mature as producers." Not only did they discover performers who could make a rush-hour crowd scream for more, but they also came across some uniquely talented musicians and songwriters. "Our top priority was to record original songs," Chalk adds. "First, to validate these artists with the public, and second so that they could collect publishing royalties. We fell in love with certain songs, and in some cases had to beg the artists to let us record them. In the end, everyone was really supportive of the project and was very pleased with the way their songs turned out."

In total, 35 New York City subway singers and musicians were eventually chosen to perform on *Subplay*, which

was recorded over a period of 15 months at Sorcerer Sound, various subway stations, two New York City apartments and a Presbyterian church. Tracking began in February 1995 in Sorcerer's Studio B with engineer Tim Conklin at the helm. Conklin was initially impressed with how important the sound of the record was to Propp and Chalk. "They were more concerned with the quality than how much time it was going to take. We discussed the format and kind of tape we were going to use and went with Ampex 456 because of its reliability and Dolby SR for the sound quality."

Conklin, who has worked with such engineers as Ed Cherney, Mario Salvati and Ron St. Germain, recorded the Sorcerer sessions through a custom Acoustilog-Neve console and on a 24-track Studer A820. "This album was an engineering challenge because we had to switch modes due to there being so many different musical styles," Conklin says. For example, on "Thunderbird," a bluesy, New Orleans rocker featuring the smokey vocals of Luke Ryan, Conklin first tracked bass, drums, percussion and a didgeridoo live before overdubbing the honky-tonk piano part. "A good, rich piano sound just wouldn't fit. There was so much else going on, especially with the constant drone of the didgeridoo. So we did a very old-style technique that works well on a good Steinway B piano played on a good floor in a good room. It's a mono recording technique, where we placed a U47 three inches off of the floor and about four feet out from the piano facing the open side. You would think that it sounds far away or that you wouldn't get enough high end, but you do, and it is a bit darker sound, but it goes along with that whole New Orleans style where you can really hit the piano hard but not get a blaring brightness. It picked up very well throughout because the sound board was reflecting off of the floor. But because the walls [of Studio B] are absorbent and the ceiling is 25 feet high, we weren't getting delayed returns."

However, in order to capture the fluid piano comping and ostinatos on guitarist Bruce Edwards' bossa nova piece, "Knobby," Conklin tried an entirely different miking approach. "I took two B&K 4007 omni microphones and positioned them on the sound board for high and low end, front-to-back, five inches off the piano, slightly angled. Because of the 360-degree pickup, it kept the stereo image very even throughout

¡Live from Latin America!

If you're taking your audio products on the road to Latin America, *Mix—Edición en Español* is the only Spanish phrase you need to know.

With approximately **20,000** copies per **bimonthly** issue, *Mix—Edición en Español* is the most widely-distributed professional audio and music publication in the Spanish-speaking world!

Your ads in *Mix—Edición en Español* reach **live sound** and **recording** professionals, aspiring pros and musicians in virtually every country in Central and South America, plus Spain and Spanish-speaking regions of the United States.

Mix contract advertisers are eligible for special discounts in *Mix—Edición en Español*. Call your *Mix* advertising manager for details on your company's discount level.

MIX[®]
EDICIÓN EN ESPAÑOL



There's only one source for professional audio and music coverage in Spanish: ¡Mix—Edición en Español!

March/April 1997

Ad Close: December 13

Materials Due: December 20

Associate Publisher • Jeffrey Turner
(510) 653-3307

Eastern Ad Manager • Michele Kanatous
(212) 367-8900

So. Cal./Southwest Ad Manager • Terry Lowe
(310) 207-8222

Northwest/Midwest Ad Manager • Shawn Yarnell
(510) 653-3307

6400 Hollis Street #12 • Emeryville, CA 94608
tel (510) 653-3307 • fax (510) 653-5142

**SUBSCRIPTION
INFORMATION
610-653-3307**

so that I got a very smooth piano sound."

Because each song on *Subplay* was recorded according to its own particular musical style, Conklin was challenged to come up with new miking techniques. "Thunderbird" was the first time I had recorded didgeridoo. I talked with Simon [the didgeridoo player] about how he likes to play it, and he said the best way is into a corner where the three intersecting walls give you good resonance. But what happens is if you have a didgeridoo pointing into the wall, it's very hard to record the front and get a really rich sound without a lot of reflections. So we took the Steinway grand, rested the didgeridoo on top and lifted the front cover of the lid up to a 90-degree angle so that we had two nice pieces of wood up against the didgeridoo. We were now able to put a U47 tube microphone in front, and that made all the difference."

While tracking sessions continued intermittently for 15 months at Sorcerer, Propp and Chalk were busy sequencing, recording, overdubbing and editing at home. "We were going to expand my ADAT setup with another ADAT and a BRC and lock it up to an Atari running Cubase," Chalk recalls, "but we had Sorcerer's sonic standard to match. We also knew there were going to be a lot of audio tracks, especially on the rock and R&B songs. This is what led us to investigate hard disk recording. So we got a demo of Pro Tools III at Audio Techniques and were blown away." Propp and Chalk also realized the benefits of recording-on-demand that a home studio provided when scheduling the musicians, all of whom are full-time performers, became a challenge in and of itself. They purchased a 16-track Pro Tools III system with the Digidesign 888 I/O interface, a Macintosh Quadra 950 with 64 MB of RAM, a SampleCell II TDM and Logic Audio 2.5. They also acquired, at Conklin's suggestion, a Neumann U87, two Joe Meek Voice Channel microphone preamps, a Summit DCL-200 compressor/limiter and a pair of KRK6000 monitors. They then transferred the 24-track analog masters for

"Thunderbird," "Knobby" and "Tan-hatman of Man-hat-tan" (a tribal jazz collaboration by saxophonist Sayyd Abdul Al-Khabyr and the group Didjiworks) to ADAT, and the ADAT tracks into Pro Tools, so that they could record, overdub and edit songs.

Meanwhile, Propp rode up and down the Broadway line capturing ambient subway sounds and live performances with a Denon DTR-80 DAT recorder and a Sonic Studio omnidirec-



L to R: Jamie Propp, Tim Conklin, Adam Chalk

tional stereo microphone. "Sonic Studio is a company based out in Oregon that handcrafts the DSM-6 condenser microphone, which attaches to your glasses and makes stereo recordings that sound very three-dimensional," according to Propp. By the time mixing began, Propp had already logged approximately 20 hours of raw sounds and musical performances. "We sorted through the DATs and transferred the recordings that we liked to Pro Tools. We then created regions and layered them on multiple tracks to create these audio interludes. The effect was to put the listener on a seat in a NYC subway car: They're riding on the trains, a stop is announced as the train pulls into the station, the doors open to a musical performance on the platform, which then fades into the next studio-produced cut as the train departs." The musical segues, which were mixed in with the subway sounds, feature everything from Little Joe (of *Money Train* fame) performing "When the Saints Go Marching In" on guitar and kazoo to Ji Shen's unique rendition of Bach's *Gavotte Partita* on chromatic harmonica.

In May 1995, location recording briefly shifted to Rutgers's Presbyterian

Church on Manhattan's Upper West Side, where Gabe Wiener of Quintessential Sound used a Schoeps KFM-6 stereo microphone, FM Acoustic preamplifiers, Prism A/D and D/A converters and an HNB PortaDAT to record "Memories of Moonlight on the Water." Propp and Chalk decided that "Memories," a traditional Chinese folk song performed by Cao Bao An on erhu (a two-string, bowed instrument) and Christina Huo on pipa (a plucked fretted instrument),

should be recorded using a minimalist recording approach in an acoustically rich space in order to capture the instruments' natural sonic characteristics.

By May 1996, all ten studio songs had been tracked, and Conklin set out to mix them at Sorcerer in four successive days. At any one time, Conklin was combining between 45 and 55 tracks per song—in some cases from almost every currently available recording medium—using the 63-input custom Acoustilog-Neve board. For example, by the time Propp and Chalk had sequenced all the drums, percussion and synths from SampleCell II and recorded vocals, guitars, a cello trio and a 12-person choir in Logic Audio for the rousing acoustic rock ballad "Teach Me About Love," they had more tracks than their Pro Tools system could play back. So when it came time to mix, they borrowed a bridge I/O card and another 888 I/O in order to have a separate output for each of the 16 available Pro Tools tracks. Conklin then had to transfer the excess audio and MIDI tracks to a 24-track Studer A820 (the last track was striped with SMPTE), which was then synched up to Pro Tools or Logic Audio, depending on which program the songs were recorded in, via Digidesign's SMPTE Slave Driver.

"There were so many things in the electronic world that could have gone wrong. It was like we had Murphy sitting in the room with us," Conklin jokes. At first, it actually seemed like Murphy was assisting on the session. "We initially encountered problems with locking up, which is to be expected," Propp adds. "Everything from not

THE TRUTH

CAN YOU HANDLE IT?

ATC

If you're looking for a monitor loudspeaker to flatter your work, then frankly you should look elsewhere. Because at ATC, we

dedicate ourselves to hand-building the most accurate studio reference monitors that money can buy.



Our soft dome midrange driver is the envy of the industry, with exceptionally uniform dispersion ensuring even balance at all listening positions and the elimination of the 'hot spot'. Unique phase correcting circuitry in

our active crossovers maintains the timing integrity of your source material and presents a stereo image of unparalleled accuracy. And by winding shorter,

denser voice coils from flattened copper

wire (we couldn't find any we liked

incidentally, so we designed and built a

machine to mill our own), ATC monitors

achieve greater linearity than conventional

loudspeakers, with a vastly extended dynamic range.



So if your mix genuinely is 'stunning' – or any of the other adjectives that seem to be so popular in loudspeaker advertising nowadays – then prepare to be stunned. But if it's anything less than perfect?

Well we hope you can handle the truth.

Call 207 773 2424 for a brochure

SEE US AT AES BOOTH # 1046



NEW SCM20A PRO

Drawing on 20 years of experience in professional monitor loudspeaker design, ATC has developed the ultimate transportable active monitor system, the new SCM20A Pro. The radical cast aluminium cabinet houses ATC's legendary bass/midrange driver combining a 150mm bass cone with a 75mm midrange soft dome, and a 25mm tweeter along with independent 200 watts RMS and 50 watts RMS power stages with a phase corrected active crossover.



SCM10 PRO, SCM20SL PRO, SCM50A PRO,
SCM100A PRO, SCM150A PRO, SCM200A PRO,
SCM300A PRO (left to right).

Exclusively distributed in the USA and UK by:

HHB Communications Inc - 43 Deerfield Road, Portland, Maine 04101 1805, USA - Tel: 207 773 2424 - Fax: 207 773 2422 - E-Mail: 75671.3316@compuserve.com

HHB Communications Ltd - 73-75 Scrubs Lane, London NW10 6QU, UK - Tel: 0181 962 5000 - Fax: 0181 962 5050 - E-Mail: sales@hhb.co.uk

Visit HHB on line at: <http://www.hhb.co.uk>

ATC - Gypsy Lane, Aston Down, Stroud, Gloucestershire, GL6 8HR, UK - Tel: 01285 760561 - Fax: 01285 760683

USE READER SERVICE CARD FOR MORE INFO



- Sonic Restoration
- Analog and Digital Mastering
- Full Range of Processing Options

TimeCapsule Mastering

310 • 436 • 5152

730 E. 3rd. Street #204
Long Beach, CA 90802

"Music for the Future"

USE READER SERVICE CARD FOR MORE INFO

having the proper extension for the bridge I/O card, to having Logic Audio sync up differently than Pro Tools. I was literally sitting there [in Sorcerer] with my Apple PowerBook, downloading new extension and control panels until we found the right pieces."

Although Conklin had a bank of Lexicon DSPs at his disposal, he often incorporated some old-style reverberation techniques during mixdown. "We had sequenced tracks and drum machines with good-sounding samples [on some songs], but you knew they were samples. So, for example, one of the things I did on 'Seduction' [a Latin pop ballad written by guitarist and vocalist Yily Nelson] was I took the snare track, pumped it out into a Fender Champ, which has a lot of high end, layed the amp on its back, put a snare drum on top of the amplifier and miked it with an SM57 so that when the snare track would play through the amplifier, it would actually resonate off of the snare drum." He also used a pair of mounted speakers and the wall surfaces in Studio B's drum room to get a very live vocal and guitar sound for Kathleen Mock's acoustic song, "When I Think Too Much." By setting up a B&K 4007 in the center to record the room's sound, a Neumann U47 FET pointing toward the wall to capture reflections, and some blankets on the floor to control the overall reverberation, Conklin was able to mix in the right amount of natural reverb.

Since its release, *Subplay* has received favorable attention in both the New York and national press. Not only has the album provided 35 New York City subway musicians with a commercially accessible medium for their unique talents, but it has also demonstrated that they can sound on a par with top commercial recording artists and professional songwriters. Propp and Chalk credit much of that achievement to Conklin's talent as a tracking and mixing engineer, as well as to his very musical approach to engineering. In turn, Conklin says that their enthusiasm and dedication was a major source of inspiration for him.

"When you live in New York City, the guy playing on the subway is just there," Conklin notes. "You see him every day, and maybe sometimes you listen and sometimes you don't. But if you're from Ohio, you rarely get to see a band on the corner you're walking around, and Propp and Chalk had the vision to see that."

[Audio clips from *Subplay* can be downloaded from www.subplay.com.—Ed.]

MASS
Modular Acoustic SubSpace

BRUCE SWEDEN • MUJ PRODUCTIONS • PE TE TOWNSEND • BOB ROCK

ROBERT SCOVILL • ROY THOMAS BAKER • DAVE ABBRUZZESE (PEARL JAM) • TNL STUDIOS (HOI LYWOOD)

Power up with the ASC ATTACK Wall

-CALL NOW-
1-800-ASC-TUBE

ASC ACOUSTIC SCIENCES CORPORATION

FROM THE MANUFACTURER OF TUBE TRAP™

Vintage Circa 1996

PVM™ T9000 CONDENSER TUBE MICROPHONE



The new Peavey PVM™ T9000 tube microphone features a special, self-polarized condenser capsule coupled with a vacuum-tube preamplifier to provide all of the mellow warmth for which tube microphones are revered.

With a smooth, extended-range frequency response and a uniform cardioid directional pattern, the PVM T9000 is ideally suited for studio vocals and a host of critical applications.

This microphone will easily handle SPLs of up to 137 dB and includes a 10 dB attenuator and 80 Hz, low-cut filter switches. The unique shock suspension incorporates a finned heat-sink to help dissipate tube filament heat!

Get all of the vintage sound and state-of-the-art functionality from a company dedicated to quality and performance in professional sound productions. Get the tube microphone that combines classic styling with today's technology—the PVM T9000.

SEE US AT AES BOOTH # 629

The MONITOR Magazine is a publication filled with the latest information musicians want to know. To receive 4 issues for only \$5 (price good in U.S. only) send check or money order to: Monitor Magazine, Peavey Electronics, 711 A Street, Meridian, MS 39301 • (601) 483-5365 • Fax (601) 486-1278 • <http://www.peavey.com> • AOL Keyword: Peavey • CompuServe: Go Peavey • © 1996



PEAVEY®

Audio Media Research™

USE READER SERVICE CARD FOR MORE INFO

SHURE'S 55 SERIES MICROPHONES

BY GREGORY A. DETOGNE



Sleek in design, with a futuristic look suited for a '30s science-fiction movie, Shure's 55 Series mics symbolize what many think of when someone says the word "microphone." The 55 Series made its debut in Shure's 1939 catalog; in the following six decades, the microphone attained an unmatched level of recognition. The high visibility of the 55 Series—and its ubiquity—are hardly the result of chance. Nor are they the careful craftings of some slick advertising campaign. The 55 Series earned its reputation as a tireless workhorse and dependable performer.

Shortly after its introduction, the 55 Series mic became a mainstay in the world of audio professionals and came to be relied on by celebrities, entertainers and politicians. The mics were widely used in the military and became familiar fixtures at well-known moments in history. Hundreds of photographs, films and videos show Shure 55s in the company of kings, queens, presidents and generals. They stood in front of Frank Sinatra and Doris Day during the big band era. Elvis embraced them, too (both in person and on a 29-cent U.S. stamp issued in 1994), as have countless other rock stars over the years. Today, some 57 years

after their first appearance, 55 Series microphones are still popular and sought after.

ORIGINS

In 1939, the original Unidyne® was the first 55 Series offering. In order to satisfy various applications, it was sold in three configurations, each with a different impedance. The first, model 55A, had a low-impedance design for operation in 35 to 50-ohm systems. Model 55B was for 200 to 250-ohm systems, while the model 55C was built for use with high-impedance gear. The 55A listed for \$42.50; the 55B and 55C cost \$45.

Catalog copy claimed the mic incorporated the "very latest in dynamic microphone design." It was, after all, "the first high-quality, low-cost moving-coil-type dynamic [microphone] with true cardioid unidirectional characteristics." The Unidyne was built to address problems created by feedback, background noise and reverberation.

The advantages embodied in the original Unidyne remain

**PERFORMANCE
LIVES ON OVER SIX
DECADES**

PHOTO: BILL SCHWOB



Celebrities pictured with the Shure 55 Series microphones. Clockwise from top left: Elvis Presley in his heyday; Dinah Shore in glamorous style; Gen. Douglas MacArthur stands firm; Tony Bennett croons away; Kennedy delivers to the Press.

today, as the unidirectional microphone remains the solution of choice in many difficult sound pickup and reinforcement situations. Using Shure's proprietary "uniphase" technology, the Unidyne was marketed for P.A., recording and broadcast applications. The streamlined chrome head could be tilted up to 90°. A built-in cable connector was supplied, as were a special locking microphone plug attached to the cable, and threads for stand mounting.

Prior to the Unidyne, the most common way of creating a mic with unidirectional response was to combine omni- and bidirectional (figure-8) elements in a single housing. If the outputs from both capsules were combined in equal proportions, the result was a cardioid pattern. In fact, you could obtain supercardioid, hypercardioid, omnidirectional or bi-directional patterns simply by controlling the relative balance of the two cartridges with a multiposition switch or panpot.

These early dual-element "unidirectional" mics had many

drawbacks. They tended to be large and bulky, and performance was lacking as well. As the omnidirectional and bi-directional elements didn't have the same frequency responses, and they were in different locations in the housing, the resulting combined frequency response and polar pattern was irregular and difficult to control. The concept was far from perfect, but better than nothing if you were facing serious feedback or noise problems.

Shure engineer Benjamin Baumzweiger (he later changed his name to Bauer) is credited as the driving force behind the first Unidyne and began developing the mic in 1937. His primary objective was to create a unidirectional mic using a single dynamic element. Bauer began by examining the physics: A single element exposed only to sound on its front side would yield an omnidirectional response. Conversely, a bidirectional mic has both sides—the front and back—exposed to sound. In theory, Bauer believed that partially blocking the backside of a

mic element would achieve a response somewhere between omni- and bidirectional that would be heart-shaped, or cardioid. In setting out to create this hypothetical cartridge, Bauer wound up with what Shure would name the Unidyne.

Bauer's completed Unidyne design had a series of front and rear openings allowing sound waves to reach both sides of the element's diaphragm. The sound waves reaching the diaphragm from the rear had a longer path and passed through openings that produced a time delay between the sound entering from the rear and sound waves striking the front of the diaphragm. By varying the amounts of acoustical resistance encountered at the rear openings, Bauer achieved cardioid, supercardioid or hypercardioid patterns using a single element, and the first true unidirectional dynamic microphone became reality.

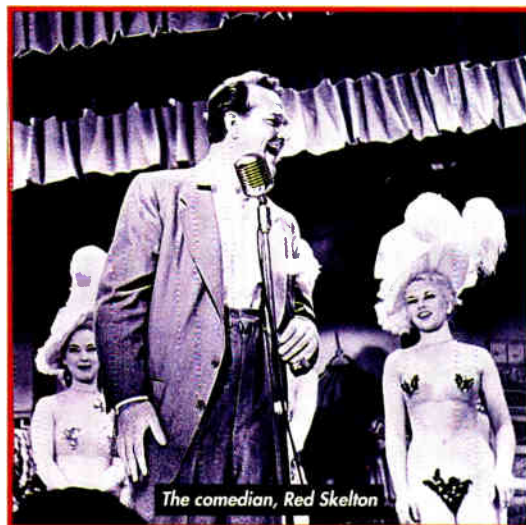
An instant success once it hit the marketplace, the original Unidyne set a new standard of dynamic mic performance combined with predictable polar response for discriminating un-

wanted sounds. In addition, its small size (relative to competitive offerings) made it popular with singers, entertainers and public speakers.

From 1939 to 1946, the Unidyne remained largely the same. Variations to the original design included the 1940 introduction of a separate broadcast version (model 555) with an improved isolation mount. A call-letter plate and a shroud were available options. By 1947, the broadcast version became model 556, and the three models designed for use with different impedances were replaced with a single model 55, with an impedance switch under the case.

"THE MICROPHONE THAT NEEDS NO NAME"

"In 1950 we developed a print ad which dramatically illustrated the dominance within the industry the Unidyne held around the globe," recalls Shure



communications consultant Howie Harwood. "It was titled 'Used the World Over More Than Any Other Microphone.' The subhead simply read, 'The Microphone That Needs No Name.' Beneath the headings we ran a large photo of the Unidyne. The name or model of the microphone didn't appear anywhere. We created it to demonstrate how familiar the Unidyne had become. By that time, it needed no name or introduction. It was recognized everywhere."

About this time, Bauer finalized his plans for the next generation of Unidynes. Unveiled in 1951, the new "Small Unidyne" mics (featuring the Unidyne II cartridge) improved upon all the features that made the original Unidyne such a success. As the name implies, the Small Unidynes were lighter in weight and more compact than the originals. Compared to their predecessors (still offered as "Standard Unidynes" in '51), the Small Unidynes were only about two-thirds the size and were available in two model configurations—Model 556S (for broadcast) and Model 55S (for general purpose).

The new cartridge's improved performance was due to improvements in magnet materials, diaphragm suspension and cartridge isolation. Random noise energy pickup was reduced even further; frequency response was improved, and the new Unidynes also featured impedance switching. The new cartridge carried the marque until 1988, when it was replaced by a modern cartridge similar to that used in the Shure SM18 handheld mic. The period between '51 and '88 saw little change in product configuration.

Today, the mic is almost outwardly identical to the 1951 version. Other

—CONTINUED ON PAGE 339

HIGHLIGHTS IN 55 SERIES HISTORY

The 55 Series microphone has led an exciting life. It helped to define different eras and enjoyed front-row seating at noteworthy events of all descriptions. Some highlights from its illustrious history include:

- The day crooner Rudy Vallee scrapped his quaint, but old-world, megaphone and switched to a Unidyne, he became the first prominent entertainer to adopt the technology for live performances.
- General Douglas MacArthur used Shure Unidynes on the deck of the U.S.S. Missouri during ceremonies that ended the war with Japan in 1945.
- You don't have to look closely to see the Unidyne in the famous photo of President Harry S. Truman holding up the erroneous newspaper headline reading "Dewey Defeats Truman."
- JFK was frequently photographed making speeches with a stylish chrome-plated microphone stand-mounted in front of him.
- Photos of Eva Peron delivering speeches clearly demonstrate her microphone of choice. True to history, the Unidyne also made it into *Evita*, the hit Broadway musical based on her life.
- The film *Good Morning Vietnam*, starring Robin Williams, made the Unidyne its virtual co-star. The microphone was also seen in print ads and posters for the film across the U.S.
- In 1994, the U.S. Postal Service issued six stamps that prominently featured the Unidyne. One of them was the aforementioned 29-cent Elvis stamp.
- The list of major entertainers who used or are still using Unidynes would probably fill two thick volumes. Just a smattering of names from the complete list includes Marlene Dietrich, Dean Martin, Jerry Lewis, Tony Bennett, Red Skelton, Axl Rose and Tom Petty. ■

SPIRIT 8

THE EXTRAS COME AS STANDARD
THE PRICE COMES AS A SURPRISE

Spirit 8 is a quiet, compact and rugged 8-bus mixing console, hardly surprising from a company with over 22 years of know-how in audio design.

What may be surprising is that it comes with every feature you could wish for, as standard, at a price* that will make the competition wonder how they did it.

AMIC+ PREAMPS
mono channels. An available 66dB of gain provides 28dB of room - enough to modulate virtually any input signal, from hottest line level dynamics to the lowest condenser mics.

PHANTOM POWER
individually selectable on each mono channel

HIGH PASS FILTER at 120Hz with steep 18dB/octave slope, essential for combatting rumble and mic popping (mono channels)

2-BAND EQ with 2 swept controls on every mono channel.
■ **2-BAND EQ** on every input

Line/Out bypass switch on every input

AUX buses with 6 controls, 2 of which are available pre- or post-fader at the master. Individual solderless jacks can be accessed pre- or post-EQ for routing

GROUP BUSES

MUTE GROUPS for scene setting

Multi-tap PEAK/PFL indicator

FLIGHT CASE on every channel allows for multitrack recording or individual effects sends. Normally selectable pre- or post-fader for recording)

MONO INPUT

DUAL STEREO INPUT

GROUP SECTION

■ **8 STEREO RETURNS** for additional stereo sound sources or effects units: 4 have EQ

■ **10 X 2 MATRIX** section for additional mixes

- \$4,299 **16**
- \$5,299 **24**
- \$6,399 **32**
- \$8,299 **40**

* Prices are 1995 US suggested retail

Also available:
Spirit Live 3- 3-bus
Spirit Live 4- 4-bus

METER BRIDGE BUILT IN

UP TO 40 BULLET-PROOF MIC INPUTS

4 MUTE GROUPS

INDIVIDUAL CHANNEL BOARDS

10 X 2 MATRIX SECTION



SEE US AT AES BOOTH # 938

APPLICATIONS

Front-of-House Mixing

Theatre/Venue

Installations

Touring

Recording direct to multitrack

Spirit by Soundcraft™ Inc.,
11820 Kemper Road,
Auburn, CA. 95603
Tel: (916) 886 0488
Fax: (916) 888 0480



SPIRIT
By Soundcraft

Harman International Company

COAST TO

L.A. GRAPEVINE

by Maureen Droney

Brandon's Way, the new studio owned by Kenny "Babyface" Edmonds and named for his newborn son, is taking shape. It's situated in Hollywood on a block of Highland near Melrose that's populated with post houses, coffeehouses

and some interesting examples of L.A.-style architecture. The three-room, studio bauton-designed facility was still under construction when I visited, but already had work under way on the new Babyface album, as well as on projects for Vanessa Williams and Az Yet. Brad Gilderman and Jon Gass are the two regular engineers at Brandon's Way. Gilder-

man (who has also been in charge of construction while continuing his engineering chores), and studio manager Jill Pearlman gave me the tour.

Brandon's Way has the clean, efficient feel we've come to expect from bauton rooms, with an interesting use of textures—brushed cement on floors and some walls, and other surfaces composed of combinations of metal, granite, mahogany and birds-eye maple. For console selection, the "best of both worlds" route was chosen, with two Euphonix boards for pre-production and tracking, and an 80-in SSL G Plus with 40 E and 40 G Series EQ for the large mix room. "Kenny had the Euphonix at home—actually all of Studio B was his home studio," comments Gilderman. "And it's also because of the restriction of the space. You have to realize, the Euphonix in the little writing room is 144-in, more inputs than our SSL! We chose the best console for each application."

The pre-production writing and the tracking rooms have duplicate setups of all of Edmonds' keyboards—built into the walls and normaled to the consoles, with the central wiring setups designed by Gilderman and Bruce Millet. "Everything is clearly labeled as to where it comes up on the board," Gilderman says, "so that

—CONTINUED ON PAGE 326



PHOTO: EDWARD COLVER
Brad Gilderman at Brandon's Way

NY METRO REPORT

by Dan Daley

There hadn't been this much interest in a recording studio in Manhattan since the new Hit Factory was built three years ago. On June 28, **Voikunthanath**

Kanamori took possession of one of New York's recording legends,

Power Station, from Chemical Bank in an anticlimactic auction proceeding that saw Kanamori pledge \$1.925 million for the four-room facility on West 53rd Street. Two months later, when I visited, Kanamori was in the final stages of formulating the game plan for what is now known as Avatar Studios, a name (taken from the Hindu concept of reincarnation) Kanamori chose to reflect both a vision for the studio's future and an acknowledgment of its past.

Kanamori, who started out as a studio musician in Japan and transitioned to producer, has considerable experience in studio stewardship: he owns both the SSL-equipped Studio Somewhere (the purchaser of Sony's first PCM-3318 digital multitrack) and the Neve-equipped Sound Atelier in Tokyo. He started the studios in the mid-1980s to pursue his own productions and, like many musicians-turned-studio owners, quickly found himself spending far too much time administrat-

ing and far too little time making music. He did find that he had an affinity for ownership, however, and in the early '90s he began casting about for a U.S. studio location to help gain wider exposure for Japanese pop acts.

"When I started the studios in Japan, there were maybe 80 studios in Tokyo," Kanamori recalls. "Five years later, there were over 200, plus project studios. The industry there was hurting, and I got to understand what was happening to the studio business everywhere, and I knew I could make a studio work in the U.S., too."

Kanamori employed a market research firm to help

—CONTINUED ON PAGE 330



PHOTO: HOUSTON SHENZAN
Avatar Studios' owner Voikunthanath Kanamori (R) and studio president/general manager Zoë Thrall in Studio C

COAST

SESSIONS & STUDIO NEWS

SOUTHERN CALIFORNIA

After a five-year hiatus, Sound Image Studios is back. The business recently reopened in a new two-room 2,500-square-foot facility in Van Nuys. Sessions so far have included RCA artists Eleventeen tracking and mixing with producer/engineer Randy Pekich and assistant Gus Agostinelli...Atlantic recording artist Lili Hadyn recorded her self-produced debut in Studio B at NRG Recording, North Hollywood, with engineers Adam Kasper and Tim Boland and assistant Steve Mixdorf...At Master Control in Burbank, producer/engineer Tony Phillips mixed an Almo Sounds project for Lazlo Bane. Producer John Baxter and engineer John Punter overdubbed and mixed with Interscope act Date With Dizzy...Weezer returned to Sound City in Van Nuys to finish tracking their next Geffen release. The band produced, Dave Freedman engineered and Greg Fidelman assisted...So is Jessie still with that girl? Erstwhile heartthrob Rick Springfield was working on a project with engineer Bill Drescher and assistants Dave Huron and Tommy V. at Lighthouse Recorders in North Hollywood...Hoping for a backlash to the backlash, Hammer mixed his new Death Row Records album with co-producer Kevyn Lewis at Music Grinder Studios in Hollywood. Engineer Conly Abrams was assisted by Rudy Hausermann...Producer Jorge "G-Man" Corante and mix engineer Rob Chiarelli were at Sound Castle Recording in L.A. mixing for La Face Records artist Az Yet. Gabe Chiesa and Dino Johnson assisted...

NORTHEAST

New York City's Sound On Sound Recording hosted mix sessions for Shaquille O'Neil, Gato Barbieri and George Benson in Studio A, while Himuro Kyosuke with Neil Dorfsman, They Might Be Giants and Donna Lewis worked in Studio B...Bananafish recorded and mixed an EP for European release on sol 3 Records at BearTracks Recording in Suffern, NY, with producer Richard Gottehrer and engineer Jeffrey Lesser...The Tindersticks did some overdubbing at NYC tube mecca Sear Sound with guest vocalist and scintillating international star Isabella Rossellini. Dave Bedford produced, John Siket engineered and Tom Schick assisted...At Eastside Sound in New York City, artist David Wolfenson recorded songs for an upcoming release with producer R. Damien Fusco, engineer Paul Higgins and assistant Gary Townsley. The project was recorded on a Studer A827 equipped with a JRF Magnetics UltraAnalog 2-inch, 8-track headstack assembly...A similar project involved sessions for the band Pine Box at Krak Häus Studio in Foxboro, MA. The band tracked for Mercury on a 4-inch, 16-track format—actually, two linked Studer A800s, each fitted with JRF UltraAnalog heads. Producer/engineer Fletcher called the sound "mind-blowing"...Producer Godfrey Diamond was at Dreamland Studios in Woodstock, NY, recording English foursome Speedway for an early '97 release on Lava Records...At



PHOTO: ERIC DILLON
The in-house studio at Malaco Records in Jackson, Miss., was remodeled in January by acoustic designers Steven Durr and Associates. The facility includes an API Legacy 32x16 with GML automation, Durr-designed monitors and a Studer A820 24-track.

Applehead Recording in Woodstock.

NY, Rob Fraboni produced a project for indie act Q, and Victory recording artists Warzone tracked and mixed a new release produced by Gary "Dr. Know" Miller...Changing Faces tracked for an Atlantic release at Reel Tyme Recording in New York City with producer Ronald Pitts and engineer Ernie Lake...At The Loft Studios in Bronxville, NY, Carl Sturken and Evan Rogers produced nine songs they composed for artist Lorraine Cato's forthcoming MCA release. Sturken/Rogers, working with engineers Al Hemberger and Scott Cresswell, have also recently cut tracks with artists ranging from the Brand New Heavies to Kristine Blond...Belly leader Tanya Donnelly spent four days in the Neve room at Sound Techniques in Boston mixing new material for a European release with engineer Wally Gagel and assistant Dave Kirkpatrick. Wynonna was in the SSE suite recording vocals on a duet she is doing with Aretha Franklin for a Motown project. Daryl Simmons produced. Thom Kidd engineered and Kirkpatrick assisted...At Studio 4 Recording in Conshohocken, PA, Phil Nicolo produced, engineered and mixed for new Interscope artists Pur, while Joe "the Butcher" Nicolo worked with Cypress Hill's DJ Muggs on the Soul Assassins Ruff House debut for Call O' Da Wild...

NORTHWEST

Chris Isaak recorded B-sides for Japanese and European release with his touring band and producer Eric Jacobson at Coast Recorders in San Francisco. Mark Needham engineered, assisted by Ann Marie Scott...Big Head Todd & the Monsters recorded for their third Revolution Records release at Studio D in Sausalito, CA, with producer Jerry Harrison, engineer Karl Derfler and assistant Warren Latimer...Harrison was also over at Skywalker Sound in San Rafael, CA,

—CONTINUED ON PAGE 330

NASHVILLE SKYLINE

by Dan Daley

NAPRS Report—I can no longer use the adjective “fledgling” when it comes to the Nashville Association of Professional Recording Services. The organization, which was founded earlier this year, is now up to 32 members, including every major studio in town (with the exception of Masterfonics), and it has broadened membership re-

quiring is that it would be unwise at this time to invest a quarter of a million dollars in a 48-track digital machine with everything going toward hard disk recording.”

That is a significant statement, not so much for the sentiment as for the fact that the Nashville studio community has historically tended to collectively embrace technology platforms and stick with them for a long time. This is evidenced by the fact that the 32-track ProDigi format is still a major platform here. “The

manufacturers are beginning to realize just how powerful a collective buying force Nashville can be,” Nuyens comments.

Now that NAPRS has established its roots in Nashville, one of the next orders of business will be to project the studio community here beyond its geographical bor-

ders, considered by many to be critical to the city’s studio prosperity. The first move in that direction is a group NAPRS presence at the AES convention in Los Angeles and a table at the TEC Awards ceremony, including a sponsorship. “Getting Nashville beyond Nashville is definitely part of our mission statement,” Nuyens says. “We need to be visible to other markets so we can attract other types of business to Nashville. We didn’t want to do that until we had our organization in place and running smoothly here first.” Along those lines, Nuyens says, NAPRS has maintained communications with other studio organizations, most notably SPARS.

On the home front, other business on the NAPRS agenda has been to finalize a booklet laying out booking and cancellation guidelines for regional studios. Those guidelines, intended for the production assistants and A&R people in the city, were being sent to them in draft form for input before being finalized. And technical committee members Warren Rhodes (Sound Stage Studios), Lee Groitzsch (Battery Recording), Milan Bogdan (Emerald Recording) and Mike Janis and David Faulkner (The Castle) are developing various technical standards for cur-

rent common platforms, in particular uniform alignment procedures for the aging base of 32-track decks. ■

Fax Nashville news to Dan Daley at 615/646-0102 or e-mail to danwriter@aol.com.

FACILITY SPOTLIGHT

BEATSTREET PRODUCTIONS

by Gary Eskow

“I no longer need to rock the world,” says drum ace Joe Franco. Seated behind a Soundtracs Topaz console in his Manhattan project studio, Franco, whose career as a first-call drummer includes stints with Twisted Sister, The Good Rats and guitar great Leslie West, mused about the changes a 9-month-old daughter can bring.

“Having a child really centers you around your home. [Franco’s wife is veteran jingle producer Cheryl Smith.] I still love playing rock ‘n’ roll, but the idea of touring doesn’t have the same appeal that it once did.” Melding computer skills and beaucoup de drumming chops helped



Joe Franco with the IAC Noise-Lock door at his Beatstreet Productions

Franco, who took a degree in computer science and stuffed it in a drawer while pursuing a performing career, avoid the death sentence that drum machines dealt to many studio sticksters. By the late '80s, he had established himself as one of the top drum programmers in Manhattan. “My experience working on records by Hall & Oates, Mariah Carey, Celine Dion and others—both as drummer and programmer—as well as the countless jingles I helped create, got me centered around studio work here in New York. The natural evolution was Beatstreet Productions, which I opened in October of 1995.”

Before his child came, Franco shared a loft in Gramercy Park with his wife and

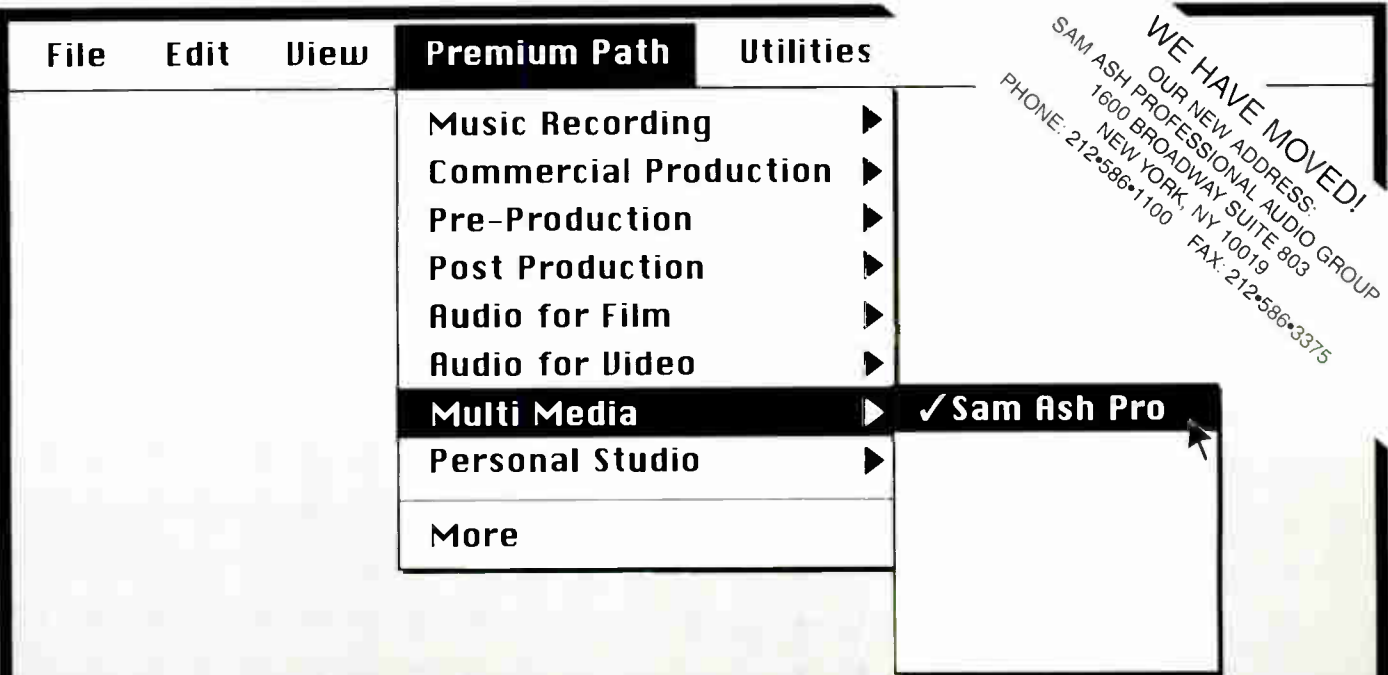


Original country boy John Denver (l) was recently at Nashville facility Recording Arts cutting an album for European release with engineer Roger Nichols

quirements to include individuals. Bob Bullock is heading up the engineers’ membership cell, according to NAPRS president Jozef Nuyens (owner of Castle Recording), who added that the next group targeted is pro audio manufacturers.

Studios join NAPRS for \$250 annually; individuals in pro audio-related fields may now join for \$150 per year; manufacturers’ dues are being estimated at \$1,000 per year, with varying levels of sponsorship up to \$5,000 annually.

“Several of them have expressed very serious interest in becoming affiliated,” says Nuyens, “including SSL, Neve, Otari, Quantegy and Sonic Solutions.” Some of those companies have already made presentations at the organization’s monthly meetings. In a move that illustrates the collective leverage of the group, as many as seven studio members are considering a mass purchase of a multitrack hard drive recording system, specifically Otari’s RADAR, as a nonlinear standard for the community. RADAR is already in use at Midtown Tone & Volume and by independent engineer Justin Niebank. “It’s been the feeling of many of the studios, discussed at the meetings, that the future of recording is not going to be tape-based,” says Nuyens. “As a result, the



WE HAVE MOVED!
 OUR NEW ADDRESS:
 SAM ASH PROFESSIONAL AUDIO GROUP
 1600 BROADWAY SUITE 803
 NEW YORK, NY 10019
 PHONE: 212•586•1100 FAX: 212•586•3375

Premium Path

Premium Path means finding the best solutions for your specific needs whether music recording, audio for video, pre-production, multi-media, or any audio application.

Engineers are always looking for the right tools. A dealer with a catalog of equipment is one thing but knowing

the equipment and how that equipment best applies to your business is another.

Sam Ash Professional provides the right combination of superior hardware and intelligent design to find the premium path to your production objectives.



723 Seventh Avenue • Third Floor • NYC 10019 Phone: 212 • 719 • 2640 Fax: 212 • 302 • 4289

Akai • Amek • Apogee • Apple • Behringer • Cedar • Crown Studio Reference • digidesign • E-mu • Eventide
 Focusrite • Genelec • KRK • Kodak • Lexicon • Manley • Millennia Media • Otari • Roland • Sonic Solutions
 Soundscape • Soundtracs • Spectral • Summit Audio • TC Electronic • Tascam • Yamaha Digital

Among many other professional audio products, parts, and accessories

a mess of recording equipment. The expected arrival of a baby left little space for gear, so Franco moved his ADATs, effects processors and mics, along with his drums, into a new facility.

"In Manhattan you can move into a classy building and spend lots of bucks on acoustic paneling, or move into a cheap place to trash. I opted for a classy place by the Flatiron Building. But I'm a drummer! I had to be able to bang and be sure that I wasn't disturbing the neighbors above, below or next door to my studio."

A friend turned Franco on to Industrial Acoustics Company Inc., a Bronx-based soundproofing firm, which was in the process of expanding its client roster to include music studios. "They really did a great job, installing a series of 2-foot wide panels that extend eight inches into the wall. The room has a double-floating floor that rests on a 1-inch rail, providing a great deal of insulation."

We asked Franco to take a spin on the traps so we could hear him and the room. The decay on the cymbals in particular was exceptionally smooth, tapering off in an extremely natural fashion. Inside, standing less than five feet from Franco as he worked out on his double-

bass drums it felt like Mike Tyson was working the mid-section. Out in the hall...nothing. "We have office workers right behind my set, and we haven't had a single complaint, which says a lot for the work that IAC did. I'm really pleased with the way the room records anything we throw in there—horns, string quartet, vocals, you name it, the room sounds great." ■

—FROM PAGE 122, I.A. GRAPPAINE

Kenny could, if necessary, go into a room without an engineer, push up the faders and write a song." All three rooms are linked by a computer/MIDI network. "You can look up lyrics, tape logs, equipment, whatever, from any of the rooms," he continues. "There are also cameras in each room, so that you can have two-way visual communication anywhere in the building. I've built three other studios for Kenny over the last three years, and we've worked together for so long now that I kind of know which situations come about. So if you want to use the piano (which is in the vocal booth in A) in Studio B instead, you can have visual communication as well as audio. Everything comes

up on our central tieline and can be patched into any of the rooms. If we are in the middle of a mix in A and Kenny needs to add a keyboard, he can plug in one of his keyboards in the credenza in A and activate all the keyboards in the tracking room. Or, if he's more comfortable working in B, by the touch of a button the mix shows up in B, and he can add the keyboards from there."

The actual recording spaces at Brandon's Way are relatively small, with the bulk of the area being devoted to control rooms and creature comforts like the lounges and the two kitchens. "We don't need a lot of big rooms," Gilderman explains, "because we don't do that kind of work. We do strings once every two or three months, we do drums once a month or two, so we don't need to waste that much real estate on a big room and all those microphones. We just go somewhere that is set up for that kind of thing."

Besides its 80-in SSL, Studio A features Augspurger monitors for LCR with surrounds in the back, and a 53-inch screen in the front center with banks of video monitors on each side. Gilderman is particularly proud of Studio A's out-board complement. "I've worked in a



Ariza Recording Studio

GRAND OPENING



Studio "A" - 24 Analog and 24 Digital Tracks. Sony MXP 3036 Mixing Console with Automation, plus tons of out-board gear and expertise.

Studio "B" - Macintosh based suite featuring Digidesign's "PRO TOOLS" Digital Audio Workstation. The leading edge in recording/editing systems.

310-529-5391



16248 Minnesota St. Paramount, CA 90723 • Fax: 310-529-5883

20 minutes from L.A. • Close to all freeways • Free parking • Call for a tour

INPUTS

- 1/4"
- Barrier Strip (except 7500)
- XLR

OUTPUTS

- Dual Binding Posts
- Speakon™ (13000, 24000 only)
- 1/4" (3000, 7500 only)

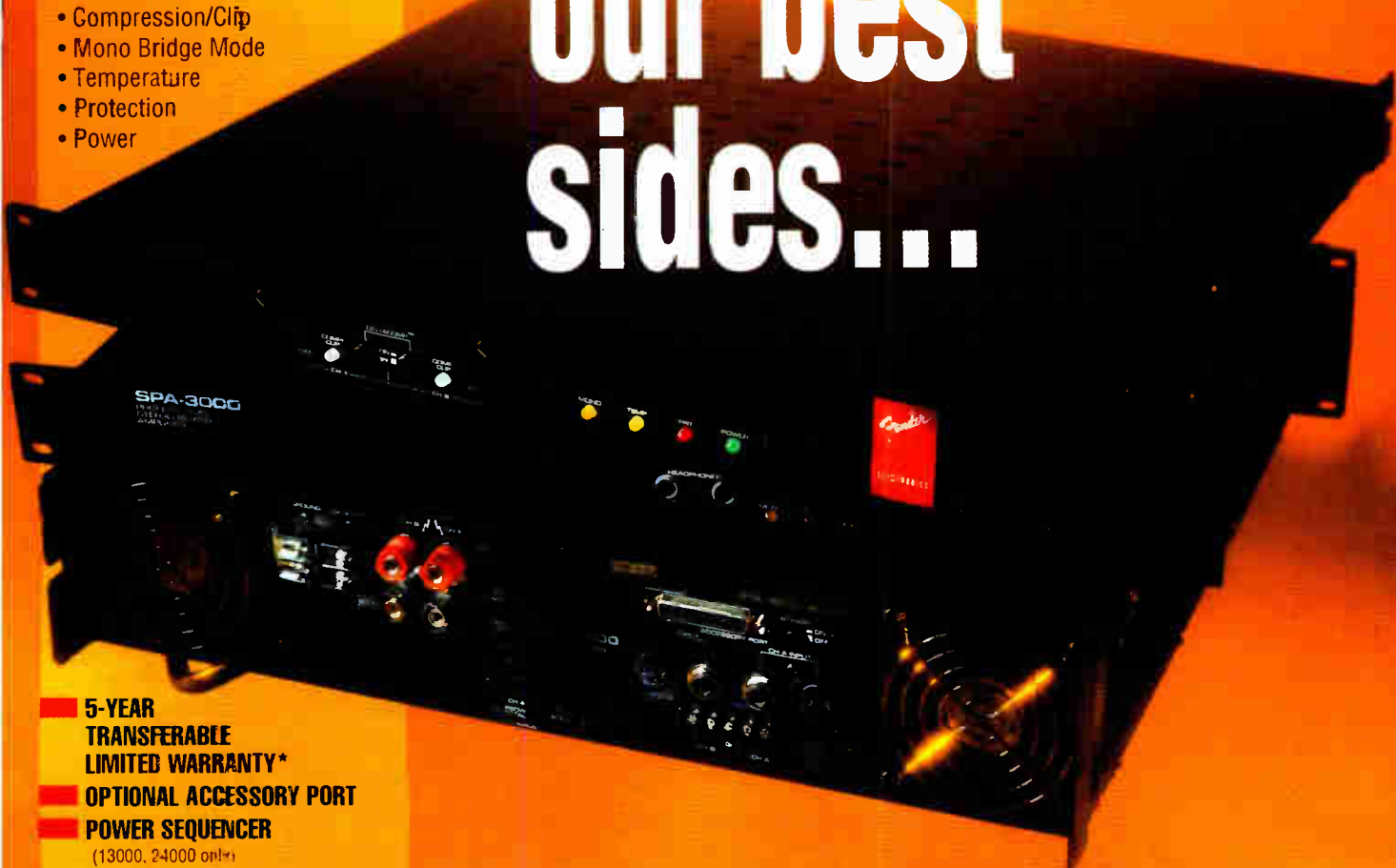
DUAL FRONT PANEL LEVEL CONTROLS

SWITCHABLE DELTACOMP™ COMPRESSION CIRCUITRY

FRONT PANEL LEDs TO MONITOR:

- Compression/Clip
- Mono Bridge Mode
- Temperature
- Protection
- Power

We wanted to show you our best sides...



5-YEAR TRANSFERABLE LIMITED WARRANTY*

OPTIONAL ACCESSORY PORT

POWER SEQUENCER (13000, 24000 only)

HIGH EFFICIENCY MULTI-RAIL DESIGN

POWER OPTIONS

3000 150W/channel @ 4 Ω;
300W @ 8 Ω

bridged mono

7500 375W/channel @ 4 Ω;
750W @ 8 Ω

bridged mono

13000 650W/channel @ 4 Ω;
1300W @ 8 Ω

bridged mono

24000 1200W/channel @ 4 Ω;
2400W @ 8 Ω

bridged mono

*USA and Canada only. Otherwise, check
with local distributor in your area.

Take a good look at the SPA Series Power Amps.

©1996 Fender Musical Instruments Corp.
For more information send \$2 postage and
handling to: Fender Pro Audio—SPA Series,
7975 North Hayden Road, Scottsdale, AZ 85258.
(602) 596-9690... or plug into FenderWorld™
at <http://www.fender.com> for all things Fender.

SEE READER World Radio History MORE INFO

lot of studios," he says, "and I haven't seen such an impressive collection of outboard in a single room. We've got everything, from the old to the new. We have lots of APIs and Neves, plus Focusrites, all the new Avalon gear, tons of compressors, and every kind of harmonizer." Each studio is also fitted with a timecode DAT machine, three regular DAT recorders, and a small duplicating system that includes two CD cutters, along with VCR, laserdisc and satellite dish.

The curious engineer will want to know that Babyface's projects are usually mixed to both analog 1/2-inch and DAT, and that Gilderman and Gass use a combination of digital and analog to record. "We use the 3348 more as a work tape," he comments. "For example, we may do 40 tracks of backgrounds, and that's easier to do on the digital, and not have to make all those analog slaves and deal with all the accompanying hiss. You can keep things really clean and tight that way. We usually mix off the analog, so we would generally cut analog, work on dig, and transfer back to analog to mix."

High-tech transmission systems—yep, they have that, too. The central patchbay controls not only all the audio and the video cameras, but also has the capability of running approximately 99 T1 phone lines. Gilderman says, "We have four systems—we're actually a little bit ahead of ourselves. We're working with audio and video—we've been getting into the movie world, and a lot of the movie houses send us film. We can see the dailies; they can send us picture, and we send them back music, over our fiber optic lines. We have the Dolby matrix system to do EDnet, and we also have three other systems; Pacific Bell has been working with us to test out a lot of very advanced stuff."

People may not realize that Sony Studios, in the Santa Monica Sony Music building, is available for booking by non-Sony artists. The Vincent Van Haaff-designed facility is fitted with a unique 56-input console, the Sony MXP 3056, which features 25 API 212S mic preamps and 50 API 550S equalizers, as well as GML automation. Also in the room is a Sony PCM-3348 for digital recording, and for analog, two Sony APR-21s and a Studer A827. There is a large recording room with three iso booths, which can also be used in conjunction with the adjacent 1,015-square-foot presentation room that is set up with audio and video for interface with the control room.

On the day I stopped in, producer Maurice White was mixing new Urban Knights material for GRP Records, with engineer Paul Klingberg and assistant Troy Gonzalez. Also in recently have been Earth, Wind & Fire with engineer Don Murray, Shawn Colvin with engineer Paul Deiter, and hit newcomer Fiona Apple working on tracks with producer Andrew Slater and engineer Mark Endert.

"The studio was really designed from



Rose Mann-Cherney

the user's standpoint," says Peter Barker, director of maintenance. "We have all kinds of tielines for MIDI and guitar, all those sorts of conveniences built in. And the studio itself is a super tracking room—it's definitely catching on."

Barker has designed a new addition to the facility, a 24-track analog MIDI studio that is completely portable. Normally housed in the presentation room, where it makes a handy second studio, it features a PowerPC with Vision and Performer, Mackie 32•8 console, Korg Trinity Workstation, and a host of outboard effects, processors, samplers, etc. The studio can be interfaced with a Yamaha C-7 piano via Disklavier. Designed to be completely flexible, it can be used in the presentation room as a self-contained studio, taken off-site as a portable or used to augment the main studio's equipment.

The mastering room has also been busy, with projects for Neil Diamond, Social Distortion, Charlie Rich and guitar whiz Jennifer Batton. Recent acquisitions by mastering engineer David Mitson include Prism A-to-D and D-to-A converters, a Sony PCM-9000 magneto-optical recorder, and a GML mastering

equalizer. "David's reputation as a mastering engineer continues to grow," comments Barker. "So it's kind of an exciting time for us." An expanding time, too. Although Sony Studios is only four years old, the space is already increasing—an Avid editing suite resides in an adjacent warehouse.

Sony Studios director Phil Kaye, a 30-year industry vet who started his career at United Western, was president at ABC Dunhill, and owned and built Jennifer Recording Studios, sums it up: "What's unique about Sony Studios on the West Coast," he says, "is that we're really a mom and pop operation. That allows us to get very personal with our clients and treat them like family, and that's what we do here."

Oh, and if you are in need of a reverse 78 turntable that will play the metal stampers for your reissue project, give traffic manager Lee Ann Paynter a call—Sony has one!

We couldn't get Rose Mann-Cherney to pose for her photo next to a console, even though she oversees sessions on four of them every day and has made her living for more than 20 years working in recording studios. Most of those years were spent at Record Plant, and, in case you haven't heard, she's now been promoted to president of the facility, making her one of the highest-ranking women in the studio business. It's a well-deserved promotion, as there are few people more experienced. Mann-Cherney joined Record Plant as traffic manager 20 years ago and has served as studio manager, general manager and VP/GM, along with putting in stints as manager of several other top-flight L.A. studios. She was quoted recently in *Billboard* as saying, "I've had three big birthdays here (30, 40, and just recently, 50!). This place has been wonderful for me. My best friends are here, and I met my husband here."

It's well known that Mann-Cherney is married to producer/engineer Ed Cherney, who has worked with artists from Bonnie Raitt to Roy Orbison, Jackson Browne, Jann Arden and the Rolling Stones. What do they talk about when they're home alone? New outboard gear? Assistant engineers? Or do they enforce a house rule of "No shop talk?"

Oh, and, by the way, besides no photo with console, we couldn't get a quote for this piece from her either, but she did want to know if we had any leads on bookings that might be up-

GET THIS VIDEOTAPE FREE

Bruce Swedien has recorded the biggest-selling music of all time.

Here's your chance to spend time with Bruce in the studio, learning techniques he developed recording everybody from Count Basie and Duke Ellington to Quincy Jones and Michael Jackson.

At the end of the program you'll see equipment demos and be offered thousands of dollars in product rebates from our sponsors.

For a limited time while we test-market this series, you can get *Recording with Bruce Swedien, Volume One* for only \$5.95 shipping and handling. This introductory offer ends December 31, 1996. Order now!

GENELEC

MONSTER CABLE

YAMAHA

Millennia
Melkita

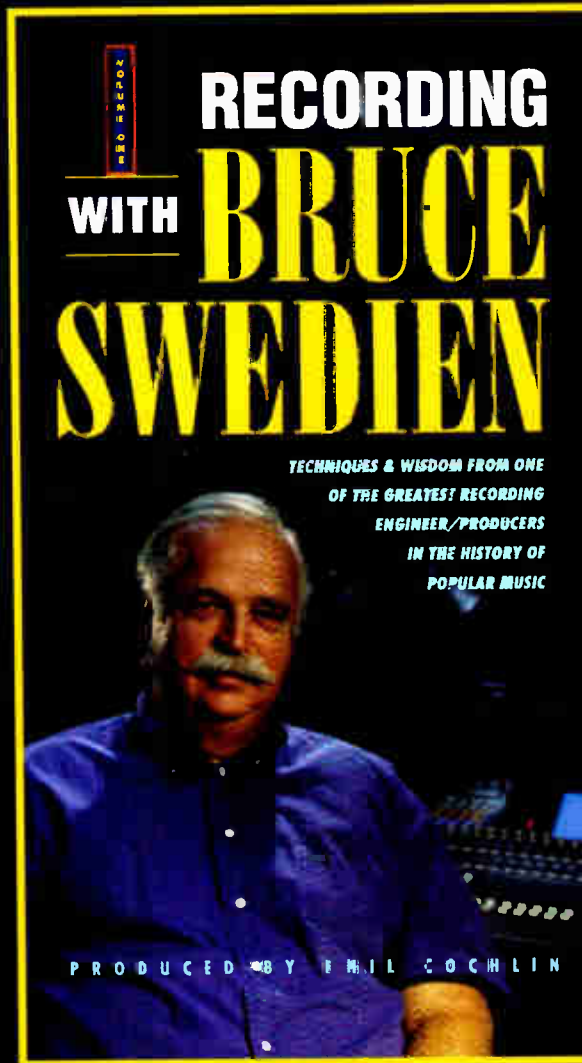
SONY



audio-technica.

Equi=Tech

ASC
TUBE TRAP



FILL IN AND MAIL THIS COUPON TODAY TO RECEIVE YOUR VIDEOTAPE!

Yes, send me *Recording with Bruce Swedien, Volume One*.

Name _____

Company _____

Address _____

City _____ State _____ Zip _____

Daytime Phone (_____) _____ ext. _____

Allow 2-4 weeks for delivery • Offer not valid outside the USA • Limit of one per customer

* Shipping & Handling Charge \$ 5.95

Sales Tax (if in CA, add \$0.51) \$ _____

TOTAL ENCLOSED \$ _____

Send this form with check or money order

Payable to: **AcuNet Corporation**

564 Mission St., #6

San Francisco, CA 94105

M1196X

coming for Record Plant! Just kidding—our congratulations, Rose.

News Flash from Pacific Recording: The rumors are true, and by the time you read this, the two-room facility in North Hollywood will have installed an 80-input SSL J9000 with Ultimation in Studio A. The board is due to go online in mid-October, when other upgrades for Studio A have been completed, including increased power capacity and a general refurbishment. The main speakers will be changed to TADs, making them compatible with Studio B's system. More outboard racks are being added, and a larger air conditioning unit to accommodate the new outboard being added to the already substantial arsenal. The new pieces will include Manley, GML, Summit and Tube-Tech compressors, an Eventide 4000 and a TC M-5000. "It's time for us to have another mix room," explains owner Joe Deranteriasian, "an SSL mix room. We already have the best of Neve in Studio B, but we get a lot of calls for SSL. We waited to buy until SSL had something better than Neve. We know the 9000 sounds great—it works for tracking and for mixing." ■

Fax L.A. News to Maureen Dronney at 818/346-3062.

—FROM PAGE 322, NY METRO REPORT

him evaluate the U.S. market, but his first choice was always New York City. "All my heroes—John Lennon, Miles Davis—all chose New York, and so did I, and L.A. has too many earthquakes," he laughs. Kanamori was casting about for a site to build from scratch when he heard about the Power Station sale 12 days before the auction was scheduled. "I knew the name, of course, but I was pleasantly surprised by all the vintage gear there," he says. "Most Japanese studios will have one Neve limiter; this place has 60 of them." He visited the studio every day before the auction, noting the apparently high level of maintenance on the older equipment and seeing potential even in the fire-damaged fourth floor. He also saw the potential in the staff, he said, and after considering the purchase, he asked studio manager Zoë Thrall if she would be willing to stay on along with most of the rest of the present staff, which had been taking bookings for the rooms up to three days before the auction. "When she said yes, I was able to make my decision in a minute or two," he says.

The auction itself was dramatic, but not in the way that most expected it to be. It was widely rumored in the local

studio community that Sony Studios was very interested in the property, as were a few other independent studio owners, including Electric Lady Studios owner Allen Selby. The conjecture was that some of the potential bidders may have hoped that both the sealed and the floor bids would fall below the minimum necessary to cover the nearly \$5 million judgment against the studio and thus make Chemical more eager to negotiate a total facility sale at a later date. Kanamori, one of the stated "bulk" bidders, says he approached the auctioneer minutes before the opening of the proceedings and asked if he could make an official offer. His initial offer of the \$4.925 million caught everyone off guard, and Kanamori remained firm on that even as the auction manager tried to nudge his bid upward. When word got out—quite quickly—that the studio was bought by a Japanese bidder, Kanamori says with a satisfied grin, "People tell me that the Sony people said to themselves, 'Who is it? Mitsubishi?'"

As for Avatar's future course, Kanamori is planning a characteristically Japanese course of balance—between the level of additional investment in the facility and the realities of the local studio economy on one hand, and, on the other, between upgrading the facility and retaining the acoustical and other elements that made the Power Station legend. Studio D, also known as AV1 and the most recent of the four studios at Avatar, will get a new console and an acoustical/aesthetic redesign as a premier mix room. Neither the new console nor the designer has been chosen yet (although Kanamori's Somewhere Studios were done by Tom Hidley), but it has been decided that Studio D's SSL G Series board will be moved to Studio B, whose SSL E/G will likely be relocated to a new pre-production studio to be built on the fourth floor. "[Studios] A and C are the best-selling ones, so they'll stay mostly the same," Kanamori says.

Monitoring presents a somewhat tougher decision. The Altec Big Reds that serve as the mains in two of the studios are dated, and while Kanamori acknowledges that, he also notes that they are integral to the magic of the rooms. "I don't want to touch that," he says. Decisions such as those, which in the case of this facility remind one of the angst accompanying proposed renovations of landmark historical structures, will be expedited via a volunteer advisory panel (Kanamori, who is the sole owner of the facility, calls it a board of directors) made up of some of the studio's longtime fans,

including producer Neil Dorfsman, engineers Joe Ferla and Ben Fowler, former staffer Alex Haas and musicians Jeff Bova and Pat Thrall (husband of Avatar's studio manager). "The idea was to bring people on who have a love for the facility and who knew it well," says Kanamori, "and they are very happy to do it."

Avatar also embarks on its current incarnation with a substantial reserve of goodwill in its karmic bank account. Other New York area studios seem positively thrilled that the new ownership is attempting to balance its heritage with its future. Kanamori maintained the studio's membership in the local SPARS chapter and addressed one of its recent meetings, where a slew of studio owners satisfied their curiosities and anxieties about him to one degree or another. "I'm glad that someone like him bought it," says Pie Studios owner Perry Margouloff. "Power Station was the most amazing studio New York ever had, and it needed someone who could keep the faith with that." ■

Dan Daley is Mix's East Coast editor. You can contact him at danwriter@aol.com

—FROM PAGE 323, SESSIONS & STUDIO NEWS
tracking a new project for Rusted Root...George Clinton's P-Funk All Stars touched down at Hyde Street Studios in San Francisco to record and mix a few tunes for their new album, *The Amazing Power of a Fully Operational Mothership*. Matt Kelley engineered and Sanjia Ross assisted...

NORTH CENTRAL

Guitarist Billy McLaughlin mixed his debut Narada Media release, *Fingerdance*, at DV Productions in Milwaukee, WI...At Red House Recording in Lawrence, KS, Outhouse and their co-producer/engineer Ed Rose tracked and mixed for an upcoming Mercury release, assisted by Tim Geisert...

SOUTHEAST

Metal act Corrosion of Conformity tracked two songs for their new Columbia release with producer John Custer and staff engineer Tracey Schroeder at Reflection Sound Studios in Charlotte, NC...Vocalist/songwriter John Crooke of Jolene tracked and mixed an upcoming solo project at Ardent Studios in Memphis, TN, with co-producer/engineer Jeff Powell and assistant Pete Matthews...Ladies' man Julio Iglesias wrapped up mixes on a tango album for Sony International at Criteria Recording in Miami. Produced by Iglesias and Roberto Levi, the sessions were engineered by Carlos Alvarez and



Back



Forward



Home



Reload



Images



Open



Print



Find



Stop

Location: <http://www.mixmag.com/>

What's New?

What's Cool?

Handbook

Net Search

Net Directory

Software



MIX ONLINE

PROFESSIONAL RECORDING · SOUND AND MUSIC PRODUCTION

Bookmark this.



Mix Online is the information resource for thousands of audio professionals on the World Wide Web. Use *Mix Online* to help you find what you need—about new equipment, recording and production techniques, and activities throughout the industry.



Mix Online is updated regularly to get new product announcements, cutting-edge production tips and the *latest-breaking industry news* to you *as quickly as possible*.



Mix Online's **Editorial Departments** present vital information in key areas of audio production, including **Music Recording**, **Sound for Picture** and **Live Sound**.

Visit the **Product Preview** and **Field Test** pages for info on the newest and hottest pro audio gear, and the **Current** and **Industry Notes** pages for the latest news in the world of audio.

There's an online version of **Studio Showcase**, a direct ordering connection to **Mix Bookshelf** and more... Visit us at www.mixmag.com to see these exciting features and return regularly for up to date industry news and technology. Bookmark this!

<http://www.mixmag.com>

MIX
HOMEEDITORIAL
DEPTSPRODUCT
PREVIEWFIELD
TESTCURRENT
NEWSINDUSTRY
NOTESSTUDIO
SHOWCASEBOOK
SHELFMIX
MASTHEADMIX
MAIL

Document: Done.



USE THE SPACE BETWEEN YOUR EARS

AES booth
#1334

A.P. Audio's 7 models of Re'an 1/4" Patchbays

Think about it. You've got connectors and cables coming out of your ears. You need a patchbay to put it all in order. A.P. Audio's line of Re'an Patchbays offer the most features, and the finest quality connections in a 1/4" Patchbay.

All Re'an 1/4" Patchbays are **made in England** and feature **SOLID nickel silver, self-cleaning contacts**, Re'an connectors that are rated for over **10,000 insertions**, **label strip channels** and a **simple method of setup and signal flow control**.

Only Re'an Patchbays have a **"Status Jack" on each module** that tell you, at a glance, the signal flow status of each module, half-normalled or de-normalled.

A.P. audio offers a wide selection of user friendly models. The RPM-48S has **48 points of balanced modules**, the RPM-44SCT has a **built in cable tester**, while the RPM-48i is specially design to **integrate with mixer insert points** using **regular TRS cables instead of "Y" cables**.

The full line also includes 1/4" to phono and hardwire models.

So use the space between Your ears and use Re'an Patchbays to get your audio life in order. For more information & the name of Re'an dealers contact:

A.P. Audio, a div. of Ace Products Enterprises, Inc.

630 Las Gallinas Ave. #215, dept.AP996 • San Rafael, CA 94903 USA

voice 415.492.9600 • fax 415-492-5959

email: skahnace@aol.com



RPM-48S module

AP Audio

USE READER SERVICE CARD FOR MORE INFO

assistant Steve Robillard... John Michael Montgomery mixed an Atlantic release with producer/engineer Csaba Petocz and assistant David Hall at Masterfonics, Nashville... Tony Vincent recorded his second album at Star Song in Nashville with producer Dennis Matkosky... Producer Dallas Austin recorded female vocalist Lou's Rowdy/Arista debut album at Nashville's Woodland Studios... Recent sessions at Sound Emporium Recording in Nashville included the Nashville Mandolin Ensemble tracking for Sony Music with producers Butch Baldisari and Paul Zonn and engineers Mark Lambert and Carl Meadows; and Perfect Stranger overdubbing for a Curb Records release with producer Clyde Brooks and engineer Bob Bullock...

SOUTHWEST

Wayne Kerr of BlueHeart Productions recorded his second album at Rivendell Recorders (Houston, TX) with producer/engineer Jeff DeVerte... Hoot Gipson mixed their upcoming Nub Records debut with producer/engineer Corey Roberts at Nub Studios in Norman, OK... At Planet Dallas, vocal group extraordinaire Shades tracked material for the soundtrack to *The Associates* with producer Clark Kent and engineer Rick Rooney. Dunn 1 Records' artists Korupshun finished their first release with producer CP and mix engineer Amado Carrasco... Interscope artists Soak worked at Arlyn Studios (Austin, TX) with producer/engineer Ben Gross and assistant Boo MacLeod... At Arlyn's sister studio Pedernales (in Spicewood, TX) Benny Valerio was in, produced by Paul Domsalla and Roy Rueter. Larry Greenhill engineered...

STUDIO NEWS

Brandon Amison, composer and owner of Yaking Cat Studios in Santa Teresa, NM, purchased a Synclavier 9600, the largest of its kind in the Southwest... Boston's SoundMirror installed a Yamaha 02R and Tascam DA-88 in its newly renovated Studio E... Ironwood Studios (Seattle) remodeled Studio A and installed an automated Neve 8428 console. The first project in the room was R.E.M. guitarist Peter Buck producing tracks for local act Tube Top... Music Annex in Menlo Park, CA, purchased a restored 56-in Neve 8128 for its Studio C mix suite... Cherry Orchard Studios in Montgomery, AL, installed a digitally controlled, fully automated Otari Status 18R console.

Finally, a kick-butt, fist clenching, face wrenching, heart pounding, aggression releasing, reason to tear up that local music store's phone # and replace it with the company that is going to bring out the pride and satisfaction deep within us all!

A Company you can depend on for the latest technology in recording, sound reinforcement, video and acoustics is within the touch of your fingertips!

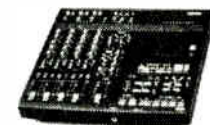


For instance the newest rage with: small group and demo recording is the

all-new digital Four-Track, erasable mini-disc portable studios



with many professional features available from those



icons of the sound world: **SONY TASCAM AND YAMAHA**



National Sound Engineering
Division of National Sound and Video, Inc.
6500 McDonough Drive Norcross, Georgia 30093

(800) 541-9140

—FROM PAGE 110, CAPITOL STUDIOS

a certain feel to it—I believe it's much better that way."

It's that kind of skill and experience that Frondelli has been trying to preserve, while also guiding the studios into the future. "My goal is as simple as this," he explains, pointing to a black-and-white photo of Sinatra with an orchestra in Studio A, circa 1956. "See this podium and the stool that Frank is using—I've restored them. My goal here was to bring the studios back up to this level of excellence without losing the roots and the soul of what made this place—like restoring an old painting."

To that end, Studio C was revamped as a mix and movie scoring room, with a design by Vincent Van Haaff and the purchase of a Neve VRQ VSP 72-input console. The addition of a Studio City sound module that is used in film consoles at Paramount and Todd-AO proved a wise investment, as many top scoring mixers like Shawn Murphy, Dennis Sands and Tim Boyle now regularly work at Capitol. Album work is also on the rise, with recent projects by both established and new artists, including Toto, Tony Williams, Helmet, female rockers Murriners, Supertanker, Wild Orchid and the Drill Team.

EDNET—A WHOLE NEW BUSINESS

The installation of EDnet, the network that enables multichannel audio, compressed video and multimedia data communications to be sent and received via fiber-optic phone lines, was another successful upgrade. It was Phil Ramone who introduced Capitol to EDnet, during the recording of a Gloria Estefan Christmas record in April 1993. Most people know that EDnet provided the means for Ramone to produce Frank Sinatra's first *Duets* album, with Sinatra recording at Capitol while some of the other vocalists made their contributions from a variety of studios on both sides of the Atlantic. Shortly thereafter, Capitol upgraded to a 6-channel system. "Following *Duets*," says Frondelli, "the use of EDnet really took off. Charlie Paakkari, our chief engineer, pioneered an advanced cueing system that helped turn it into a whole new business for us. Now we sometimes do two to three EDnet sessions a day."

Today, Capitol's three main studios house Neve consoles. Studio A features a VR60 fitted with Flying Faders, B has the vintage Neve 8068 Class A, and C has the VRQ 72, also with Flying Faders. In the works is an addition to the Studio B console of a Fred Hill-modified

Neve 8058, making 64 inputs available; that's planned to be online in January.

"It's the completion of the concept I thought of," explains Frondelli. "I needed a mix room, and once we got that together, it was 'what do we do with studio B?' I loved the idea of having an old Neve transformer-balanced console in the room, and being able to mix transformerless working in the other rooms. And we didn't want to change B too much, as people love it the way it is—kind of like an old couch."

THE CANVAS AND THE TOOLS

Housed in the Tower, in addition to the three studios, are a mastering suite and six post-production rooms, one of which is currently being turned into a new mastering/editing/Sonic Solutions/DVD/5.1 surround suite. "I think this is something people will really have use for," comments Frondelli. "Artists will paint within the canvas that they are presented, and we want to supply the canvas and the tools. We are in a unique position here at Capitol Studios because we are the technical arm of Capitol Records and EMI in the U.S., so there is a technical involvement that wouldn't come up in a private studio. That means that when it comes down to recording concepts and technical issues, we are directly involved in all of it, from imbedding code systems, to DVD, to enhanced CD, to replication. We also have an archive to watch over—keeping masters in good shape and advising the company on issues like digitization of audio for retrieval over a wide area network with all the documentation attached.

"I'm in a place where we can push the envelope a little bit because we are not so attached to the private sector," he adds. "[Capitol boss] Gary Gersh has been wonderful—he grew up in studios and has a real passion for them, so he's been really supportive and wants to make sure that we get it to a certain point, where people recognize these studios for what they are, and for what they once were and what they meant to people. They were the studios that everybody wanted to work in because Nat and Frank and all these great musicians worked here, and they were the most modern studios of their time. And today, we are still moving forward. Any studio that thinks that they can just sit back and sit still is wrong, because it's really all about evolution." ■

Maureen Droney is Mix's L.A. editor.

Heads Up!

When it comes to head relapping
New replacement heads
digital/optical alignment service

Your best choice is JRF...
Hands Down!


MAGNETIC SCIENCES
201 579 5773 FAX 201 579 6021

USE READER SERVICE CARD FOR MORE INFO

CLEAN PATCH BAYS

NO DOWN TIME

SEE US AT AES BOOTH # 501



**VERTIGO BURNISHERS AND INJECTORS
RESTORE ORIGINAL PERFORMANCE
TO YOUR PATCH BAYS**

VERTIGO 1/4" TRS AND TT BURNISHERS:
Each used to eliminate noise caused by contamination of main contacts in normal patching situations.

VERTIGO 1/4" TRS AND TT INJECTORS:
Each allows injection of cleaning solvent in breaking contacts (normals), to eliminate intermittency that occurs when patch cord has been removed.

ONLY \$34.95 Ea. (Cont. USA) Please write for additional information and order form. Used by Professionals Worldwide. US Patent No. 4,733,678

VERTIGO RECORDING SERVICES
12115 Magnolia Blvd. # 116
North Hollywood, CA 91607
Telephone: (818) 907-5161
Fax: (818) 784-3763

STUDIO SHOWCASE



Record Plant Remote

109 Pinecliff Lake Dr.
West Milford, NJ 07480
(201) 728-8114; Fax (201) 728-8017

Record Plant Remote has been an industry leader in location recording for over 20 years. We've kept abreast of new developments in audio technology without sacrificing our sonic integrity. Some of our recent clients include MTV, Aerosmith, Elton John, Michael Bolton, Spin Doctors, R.E.M., Live, Meatloaf, Wynton Marsalis, John Mellencamp, Keith Richards, Chuck Berry, Guns N' Roses, Whitney Houston, Pavarotti, INXS, James Taylor, Emmylou Harris, Shawn Colvin, Billy Ray Cyrus, Mary Chapin Carpenter, Trisha Yearwood and Harry Connick Jr. Our reputation speaks for itself!

Quad Studios

723 7th Ave.
New York, NY 10019
(212) 730-1035; Fax (212) 730-1083

Quad Studios is a six-floor facility with four world-class Solid State Logic studios, two complete MIDI rooms and a digital editing suite—available for all your music recording needs. The newest SSL console—J9000—has been installed into our completely rebuilt Studio A. Artists who use our state-of-the-art facility include Metallica, Pat Metheny, D'Angelo, Yoko Ono, David Morales, Fugees and Dave Matthews Band.



Sound Kitchen

112 Seaboard Lane
Franklin, TN 37064
(615) 370-5773; Fax (615) 370-1712

The Sound Kitchen arrived in Nashville in 1994 and has become a first-call studio for producers and engineers nationwide. This 6,500-sq.-ft. dedicated multimedia recording facility is located in the Cool Springs area of Franklin (ten short minutes from Music Row). A Neve VR 72 legend, a Neve V3 60 Legend and a Sony 48-track digital tape deck are the cornerstones of these superbly equipped studios.



Rockingchair Recording Studios

1711 Poplar Ave., Memphis, TN 38104
(901) 276-8542; Fax (901) 276-8546
e-mail: rknchair@vdospk.com
<http://www.vdospk.com/rknchair>

Rockingchair Recording Studios, located in the heart of midtown, adds to Memphis' rich musical heritage. Offering a relaxed and creative ambience, state-of-the-art equipment and an advanced staff, Rockingchair is the perfect retreat for today's recording artist. Our philosophy is simply this: An easygoing atmosphere allows for the best performance and maximum productivity. Established in 1989, the new facility went online December 1993 with two independent studios and an expanded equipment list.



Gallery Recording Studios

132 West 22nd Street, 6th Floor
New York, NY 10011
(212) 366-6640; Fax (212) 727-7187
e-mail: gallery@bbhinc.com

It's a recording studio and an art gallery! A beautifully designed new, spacious facility with outstanding acoustics, based in the heart of Manhattan. The best in vintage/modern gear and an inspiring atmosphere enhanced by ever-changing exhibits of striking modern artwork. Built to spoil the most demanding engineer, producer or musician. Some names: 148-in Trident 90 console with moving faders, Studer 827s, Lexicon, Quested, Pro Tools, DA-88s, Focusrite, Neve, Summit, Pultec, TC, Neumann, Steinway.



Toast

1340 Mission Street
San Francisco, CA 94103
(415) 864-8678; Fax (415) 864-8697

Toast is a two-studio facility located in San Francisco's vibrant South of Market district. Studio A contains a classic Neve 8026 while Studio B houses a Trident TSM; both fully automated and available with multiple isolation rooms. Other gear includes Studer, GML, TC Electronic, AKG, Telefunken, Coles, B&K and Neumann among others. Amenities include private lounges, kitchen, a location near clubs and restaurants, satellite TV, hotel accommodations and more.

STUDIO SHOWCASE



Ocean Lab Studios LTD.

James Fort Bldg.
Hincks St., Bridgetown
Barbados, West Indies
(246) 431-0865; Fax (246) 431-9156
e-mail: dginniss@caribsurf.com
<http://www.angelfire.com/pg1/ocean/index.html>

Located on the Caribbean Island of Barbados, Ocean Lab Studios offers a relaxing atmosphere for creativity. Our control room features a custom 48-input Harrison console, analog and digital tape machines and standard mics and outboard gear. Situated on the West Coast, the studio is near restaurants and watersports activities. An attractive package, including accommodations and transportation, is available to suit your budget. Relax on a tropical Caribbean Island and "let your creative juices flow!"



Skip Saylor Recording

506 N. Larchmont Blvd.
Los Angeles, CA 90004
(213) 467-3515; Fax (213) 467-4636

Located in the prestigious Larchmont Village, Skip Saylor Recording is celebrating its 16th year in business. Offering both SSL with Ultimotion and all-discrete API-Neve with moving faders, SSR is one of L.A.'s premiere recording and mastering facilities for such artists as Coolio, Toni Braxton, Brandy, TLC, Seal, Madonna, Guns N' Roses, Def Leppard, k.d. lang, John Paul Jones, Quincy Jones, Tamia, N'Dea Davenport, Warren G, Domino, Ice Cube, Mack 10, DJ. Quick, Killapriest, Goodie Mob.



Video Post & Transfer

2727 Inwood Road
Dallas, TX 75235
(214) 350-2676; Fax (214) 352-1427

World-class mixing suites house the Southwest's only SSL Omnimix and Scenaria featuring surround sound mix/monitoring capabilities and stereo sweetening. Both digital systems utilize random-access audio and picture. ISDN full-fidelity stereo capability digital phone patch services reach anywhere in the world. Emu E1V digital sampler, effects processors, PowerPC and SSL ScreenSound enhance the creation and manipulation of a host of audio special effects.



Coyote Recording Studios

100 North 6th St.,
Brooklyn, NY 11211
(718) 387-7958; Fax (718) 388-3896

A studio born from years of hard work by two brothers; one an engineer, the other a musician, both with an ear for music and a dream of making it their business. The control room glows with the power of outboard gear and the studio boasts vintage amps and premium mics. Notable artists include: Bottle Rockets, Del Lords, Eric Ambel, Blood Oranges, Ramones, Guided by Voices, Mojo Nixon and other musical luminaries. The studio rocks. Pure and simple.



The Santa Fe Center Studios

933 San Pedro, SE
Albuquerque, NM 87108
(505) 265-2511; Fax (505) 265-4714

Santa Fe Center Studios in Albuquerque, New Mexico is uniquely qualified to offer the most flexible audio production facility in the Southwest: 2 control rooms, 6 isolation chambers, each with varied qualities ranging the gamut of acoustics from no influence, small, medium, large live reflective influences to a delay/reverberant chamber. MIDI/dubbing production suite also available. Equipment from Focusrite, Lexicon, Apogee, Digidesign, Amek, Eventide, Sony. Escape the big city and give your next project the attention it deserves.



Savebone Music Inc.

130 West 42nd St., Suite 952
New York, NY 10036
(212) 997-0206; Fax (212) 997-0481

Recent projects feature former Rolling Stones guitarist Mick Taylor, Sasha, Carlos Alomar, Lenny Pickett, Robin Clark, Steve Ferrone, T.M. Stevens, Vivian Cherry and Tawatha Agee. The engineer is Nenad Gracanin, and the producer is Sasha. Studios feature SSL 4064, G Series computer, Studer A827, Sony PCM 3324, Sony PCM 8008, state-of-the-art recording, mixdown and mastering. Highest possible quality is our main concern.

STUDIO SHOWCASE



Sound/Mirror

76 Green Street
Boston, MA 02130-2271
(617) 522-1412; Fax (617) 524-8377

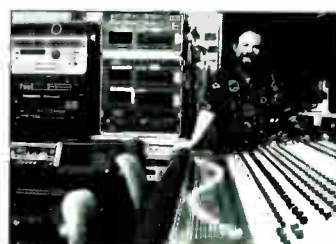
We are a fully digital location recording, post-production and CD-mastering company specializing in classical and acoustic music. We do extensive field recording around the world and have been involved in complete recording projects for nearly every major classical label over the past 20 years. Full location recording with PCM-9000; post-production with Sonic Solutions, Lexicon Opus and Sony DAE-3000 and more. Your recording may be our next Grammy nominee.



Infinity Studios

27 Cobek Court
Brooklyn, NY 11223
(718) 339-1336; Fax (718) 339-1424

The only Neve VR60 with Flying Faders and Recall in NYC outside of Manhattan. Newly renovated control room. 24- or 48-track recording on new Studer A 827's or ADAT digital formats, at low block rates. Studio B, refurbished Harrison Raven console. MIDI suite for pre-production work. Mackie 8-Bus 32-input console. ADATs. "All-in" lockout. All three rooms for one low price! Program in the MIDI suite. Cut tracks in Studio B, mix on the Neve in Studio A! We'll even supply the transportation from any midtown location!



Joe Hoffmann Studios

PO Box 840, Occidental, CA 95465
(800) 51-RECORD; Fax (707) 874-1869

Recordings done at Hoffmann Studios have won Billboard's Best of the Year, World Music Album of the Year awards and NAIRD's Best Seasonal Release and Best Spoken Word Album for 1995. 32-trk. digital or 24-trk. analog formats along with a 9-foot Steinway Concert Grand and a Petrof Grand Piano are available. Located about an hour north of San Francisco in the rolling coastal hills, we offer a pristine recording environment with a majestic view of the redwoods and pines.

Audities

Audities Recording

11044 Burbank Blvd., Suite 200
North Hollywood, CA 91601
(818) 754-1191
e-mail: melod@leonardo.net

Audities Recording, located in the media district of North Hollywood, is a 24-trk professional recording facility that specializes in Classic Keyboards of the past. We have an unprecedented collection of rarities including: Bosendorfer Grand, Hammonds, many modular synths, toy pianos, polyphonics, Mellotrons, Chamberlins and many "one-of-a-kind" instruments that have NEVER BEEN RECORDED. Unique opportunities in keyboard tracking.



The Hook Studios

12623 Sherman Way, Suite B
North Hollywood, CA 91605
(818) 759-4665; Fax (818) 759-0268

"The best overdub facility in L.A."

Our goal is to achieve the best sound to tape with a focus on overdubs and vocals. Check this out! Neve 8068/Studer A-827, AKG C-12s, C-24s, Neumann U47s, U67s, M249s, Neumann SM2s, 582s, Schoeps C221s, Telefunken Elam 250, 251.



Gravity Studios

2250 W. North Ave., 1st Fl.
Chicago, IL 60647
Tel/Fax (312) 862-1880

In the heart of Chicago's Wicker Park, Gravity's secluded facility provides a true creative haven. Featuring a brick live room and three iso's, Gravity is ideal for tracking. For mixing, a large-frame, fully automated Amek Big is flanked by a Studer A-800 MkIII and names like Summit, Quantec, TC, Eventide, Genelec and Apogee. Clients include Smashing Pumpkins, Veruca Salt, Poi Dog Pondering and Loud Lucy.

STUDIO SHOWCASE



Hotdish Mastering

143 Bates Ave.
St Paul, MN 55106
(612) 776-4611; Fax (612) 778-1776
e-mail: hotdish@bitstream.net

Mastering services from simple transfers to delivery formats (1630, CD-R, Exabyte) to fully tailored program-dependent polishing. Other services: digital editing/sweetening/restoration/archiving. Flat rate prices/brokering available. Custom-designed monitor environment flat from 23 Hz to 30+ kHz. 24-bit signal path includes Sonic Solutions, TC Electronic M5000. Analog formats accepted. Customer satisfaction is our primary goal. Contact Phil Mendelsohn for more information.



MasterMix

1808 Division Street
Nashville, TN 37203
(615) 321-5970; Fax (615) 321-0764

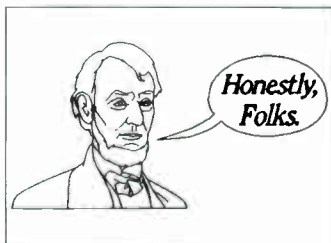
Located near Nashville's Music Row, MasterMix has been providing mastering and editing services for over 13 years. MasterMix blends experienced talent with a variety of classic analog and the latest digital equipment. We strive to offer the client the widest range of choices in high-quality listening environments. Our equipment list is always expanding, so call for the latest details.



Soundhouse Recording

7023 15th Ave N.W.
Seattle, WA 98117-5502
(206) 784-4848; Fax (206) 784-2604

Designed by Chips Davis and Frank Hubach Associates, Soundhouse is a cozy, built-from-the-ground-up, analog and digital recording facility. Home to a vintage 40-input Trident 80B, a Studer A827 24-track and the finest in outboard gear. The live room features hardwood floors and an impressive microphone collection. We have Nintendo, cable television, a barbecue and all the comforts of home.



Yaking Cat Studios

3107 Butte Drive
Santa Teresa, NM 88008-9509
(505) 589-6111

Five minutes from El Paso, Texas... Five minutes from Juarez, Mexico... Convenient flight destination... Southwest weather, privacy, shopping... Hotel and transportation arranged. Remember why you got started... Music! Enjoy our new, loaded, Synclavier 9600 with keyboard, guitar, sampling, synthesis, DSP and sound library on a fast hard drive, for an unbelievable rate. Be creative, enjoy life, vacation, leave the world behind. Cook in our kitchen; crash on our couch. Call for more information.



Giant Recording Studios

1776 Broadway, New York, NY 10019
(212) 247-1160; Fax (212) 247-2081

Sound Giant!



South Point Productions

2963 SW 22 Terrace
Miami, FL 33145
(305) 447-0071; Fax (305) 446-7724

South Point Productions is a place where the subtle things get noticed and make a difference. Our professional, friendly atmosphere encourages innovative production. The studio relies on 32 tracks of digital audio, an API Legacy console, Pro Tools DAW, plus an extensive line of MIDI equipment to best produce the kind of music your project requires; from audio post to full-length albums.

—FROM PAGE 33, *THE RHINO BROTHERS*

Flock, which might be a great band and did good music, but if you were alive in the '60s you would know that The Flock were last on the bill at the Fillmore, had absolutely no influence on culture or the music of that era. I think it's important that people who lived it and were the fans have the connection to what is released.

Bronson: A lot of times people look at chart books and those are the songs that go on the album. Just because something charted doesn't necessarily mean that it was good, or should be reissued. That's part of the perspective of understanding, and the other part is understanding that certain songs were regional hits that really had more importance than what they did nationally. There's more to it than reading the old charts and Trouser Press to learn about the '60s rather than living it.

Bonzai: Do you have any stories about actual material that might have been missed?

Bronson: The one I remember happened when we wanted to put out some early Everly Brothers. We had determined that the first-generation master tapes had never been used on their recordings; it was always a second- or third-generation tape. To be able to hear our "pressing" at the time—and to hear that first generation—sounded so much better, had so much presence. That was a real pleasure. We also put out an outtakes album called *All They Had to Do Was Dream*, and it was noticeably different, with different arrangements.

The Monkees' "Missing Link" series, the third one was released early this year. Ordinarily, by the time you get to the third rarities record, you would think that the material is pretty thin. But it's actually the strongest of the three albums.

Bonzai: Where did you find the tapes?

Bronson: Some were found in a closet, some were at Screen Gems music publishing. There are a lot of things that get forgotten about. It's unfortunate, but there are still a lot of Monkees multi-tracks that we haven't been able to track down, even though we own them. Things get thrown out, they are mislabeled in old tape vaults.

Foos: The major labels and most record companies never dreamed that the music of the day in the '50s and '60s would still live on and that anybody would care in the '80s and '90s. So,

there was a lack of preservation.

Bonzai: You must have a pretty extensive archiving operation here.

Bronson: Yes, but it's not guys in white lab coats working at microscopes. We take advantage of the evolution of technology, and we choose our mastering labs carefully.

Bonzai: Bill Inglot is your main in-house engineer?

Bronson: Yes, but he spends most of his time in the mastering labs and in recording studios.

Foos: Or out hunting for tapes.

Bonzai: Are you two the main guys responsible for the compact disc reissue business?

Foos: Actually it started way before the compact disc...

**We never were
extremist collectors.
We were music fans,
but we didn't spend
every moment
looking for
rare B sides.**

—Richard Foos

Bronson: In those days, major labels coming out of the late '70s, it was *Saturday Night Fever* and Fleetwood Mac and Platinum-selling albums as their main focus. To sell 10,000 of this or 20,000 of that didn't relate to them. When we came along and put out the Best of the Spencer Davis Group, or Best of Love, of The Turtles—because it wasn't available—the major labels didn't care too much.

Rhino's growth was always very slow, but very steady, and at some point four or five years ago the majors woke up and said, "Let's do what Rhino does." Columbia Records started Legacy, and in the first ads for their reissue label you saw someone hunting rhinos, like they were coming to get us. PolyGram has "Chronicles." All the majors now have their own reissue labels, so this business is attributed to what Rhino started. The good thing is that the major-label reissues tend to be of higher quality than they were ten or 20 years ago, so we did influence that. Also, for the obscure music trivialist who wants albums by

The Flock—you can get them now.

There is more competition for us, which keeps us on our toes and sharper and better at what we're doing. But there tends to be a glut of product in the reissue bins, and the consumer may be a bit confused.

Bonzai: Is there a minimum sales level below which you won't accept a project?

Foos: One thing that should be noted is that we never were the extremist collectors. We were music fans, and passionate, but we didn't have hundreds of thousands of records, spending every waking moment looking for a rare B side. We're fans and we're into compilations, so if there's a particular group, we are generally satisfied with having their greatest hits. We're looking to sell a lot of units, and one of the reasons for our commercial success is that we put out records for fans rather than fanatics. There are labels like Bear Family in Germany that put out 20-CD Hank Snow boxed sets.

Bonzai: So there are companies even weirder than Rhino?

Foos: Exactly, and they might sell 500 copies, but they are such fanatics—maybe the guy has an inheritance and does this to lose money. We don't have that bankroll, so we have to make money.

Bronson: For the most part, we try to gear ourselves for profitability, so we can maintain a healthy company. But occasionally, we will put out albums that we expect we might lose money on, and sometimes we're surprised. One example is a compilation of a British band, "The Best of the Bonzo Dog Band." Going into it, I was thinking it might sell 3,000 to 5,000 copies, but I felt that it was important to make the work available in the U.S., and we actually sold about 8,000. That's about the breaking-even point. If it's music that we perceive as being really great, we will make it available regardless of the profit.

Bonzai: Are you two the main choosers of who gets saved and who gets lost?

Bronson: No, it's a group process. Gary Stewart in our A&R department is very instrumental. In the early days, it was primarily us, when we were a smaller company, but we like to encourage others to join.

Foos: And our primary emphasis is on the '50s and '60s, so we need younger people to do the '70s, '80s and '90s.

Bonzai: Do you ever get any flack from artists who wished their work was forgotten? The *Golden Throat* series, for in-

stance—does Leonard Nimoy feel uncomfortable about his recording of “Proud Mary”?

Bronson: Hard to say. I don’t know exactly how William Shatner feels about his “Lucy In the Sky With Diamonds,” but he might be a little bothered when he does a radio station interview and they drag it out.

It’s usually the opposite. One of the most touching examples was shortly after our Roy Orbison anthology came out, we got a really nice letter from him and his wife thanking us and appreciating the job we had done. Two months later, he died. That was especially poignant. Most of the people we are in contact with love the job we do, because we are thorough and the sound quality is good, and the documentation is good.

Bonzai: The great one that got away?

Foos: The Phil Spector Box Set. We almost had it.

Bronson: We had contracted for it, but ultimately we weren’t able to do it.

Foos: I get frustrated a lot when I buy compilations from other labels and they just don’t get it. If it’s an artist I grew up listening to, I know what should be on an album with a historical perspective—and when there are great tracks missing, it drives me crazy. I just got a “best of” album from another company, a compilation of one of my favorite groups in the ‘60s, and it was done in a haphazard manner. That’s very frustrating, but it reminds me of why Rhino is needed.

Bonzai: Is this kind of travesty a function of business ruling over the creative side?

Foos: It could be either one. If the creative side gets too prominent—let’s say the person who put that collection together was 27 years old and didn’t live in that era, there is no way he could do it from a historical perspective because he wasn’t there. Only a few people have the proper expertise to combine the creative side with the business side.

Bronson: Dave Clark Five—we really wanted to do that one, and if that had been solely our project, I think we could have done a better job. We tried for many years. Another one was Badfinger, from the Apple catalog—we made a substantial offer, but in the settlement between the Beatles and EMI, I understand they threw in the Apple catalog.

Bonzai: Do you have a lot of sharp lawyers?

Foos: Yes.

Bonzai: Any gangsters?

Foos: Not that we know of.

Bonzai: Do you push it to the wall to make sure you get the very best possible technology for this type of work?

Foos: Yes, and we push it to the wall on every level to make our albums the best they can possibly be: technically, photos, graphics, liner notes, sound, song selection. Every one has to be working together. If any one is missing, you have an unsatisfying package.

Bonzai: What’s the most exciting new project for you, Richard?

Foos: We’ve got the *Doo Wop Volume 2* coming out—I’m excited because we have one of my favorite songs from the ‘60s, that no one heard if they weren’t living in Pittsburgh. It was a hit, and we got the rights by pure accident. The grandson of the original owner of the label wrote to me, and if I didn’t happen to have lived in Pittsburgh as a music fan...

Bronson: Tell us what the song is!

Foos: “Arabia” by the Delecos. They were actually from Indiana, and the story is amazing. It was an elderly white woman in a small town who got the idea to do a Doo Wop song with all black singers. She started a label with The Delecos, and they did this unbelievably R&B black-sounding record that was completely out of date, Doo Wop in 1964.

Bonzai: Funny what happens when people follow their passions...

Foos: Exactly, and the song was a complete stiff, but it was Number One in Pittsburgh, and I really don’t know why.

Bonzai: As I listen to you, it makes me think that for many artists the timing was simply wrong.

Bronson: Happens all the time. That’s why we try to turn people on to great records that they might not have heard. A few years ago, I put together the British Invasion series with the hits, but there were some bonus tracks that were hits in England but weren’t heard here. That’s part of the mission. To echo Richard and come full circle back to The Monkees—in addition to the new album, we’ve got a Disney Channel documentary, a CD-ROM with millennium, and there’s a Rhino coffee table book in partnership with General Publishing Group. And we’ll also be doing watches and T-shirts and things like that. We’re gearing up for this 30th anniversary in a big way, and as a result, we’re getting into some new areas of business for us. ■

Rowing editor Mr. Bonzai’s version of the Sex Pistols’ “God Save the Queen” will be included on Golden Throats Vol. III.

—FROM PAGE 320, SHURE 55 SERIES MICS

than a modification made to each model’s base in 1962, and the elimination of the impedance selector switch in the late ‘70s, the only other visible changes made have been to the material lining the housing, which started out as reddish-brown silk in the earliest models, was changed to blue, then black, and finally to black foam. Shure’s current catalog shows the 55SH Series II, which houses the SM48-style cartridge. As reliable as its forebears, the microphone’s cardioid/dynamic design has even better frequency response and directional characteristics.

THE STATUS OF AN ICON

For anyone who has read this far, a twofold question logically arises: What’s so special about the 55 Series microphones, and why do they remain so popular? “Part of the answer lies in the fact that they have become cultural icons,” answers Shure applications engineer Tim Vear. “Technically speaking, they also had the luck of falling into a design category which proved to be the one which won out over everything else. Carbon and crystal microphones gradually fell by the wayside, but dynamic mics live on.”

One of Shure’s prominent—albeit unofficial—historians and keeper of corporate folklore, Vear is an expert on 55 Series facts, philosophy and trivia. “With the exception of some reissues of old Neumann condenser mics, I don’t think there are any mics in production today that go back as far as the 55 Series models,” he states. “The reality of having been around for generations has helped make these products an icon, both internally here at Shure and to the rest of the world. Something I refer to as a ‘coolness quotient’ also adds to the icon status of the 55 Series. Viewed from a design perspective, they exude all of the coolness of a ‘57 T-Bird, Stratocaster guitar or a James Dean movie.”

INTO THE FUTURE

If the evolution of the 55 Series from the original Unidyne to today’s model 55SH Series II is any indication, these hardy performers will see use in the next millennium. The future will likely find 55 Series mics continuing to serve sound reinforcement needs and being used in films, videos and TV, adding realism to scenes depicting events from the past.

Will they still be cool, too, in 2002? Take a look into the polished luster of the ribbed housing. The answer is right there. ■



"THE PROFESSIONAL'S SOURCE . . .

FOR ORDERS CALL:

OR FAX (24 HOURS):

800-947-5508

800-947-9003

212-444-6698

212-444-5001

OVERNIGHT AND RUSH SERVICE AVAILABLE

E-Mail at 76623.570@compuserve.com

TASCAM 102 mkII / 103 Stereo Mixdown Cassette Decks



Best values for musicians, studio operators and production houses, the 102 mkII and the 103 consistently produce the highest quality tape recorded output.

- They Feature:**
- 60dB signal-to-noise ratio combines with wide frequency response for high-fidelity sound reproduction using any type of cassette tape.
 - Industry-standard Dolby B/C noise reduction and Dolby HX Pro sound technology extends high frequency performance up to 6dB and minimizes distortion.
 - Advanced bias -sensing electronics automatically chooses optimal recording settings for the type of tape you load in—Normal, Metal or CrO2.
 - Record/Mute autospacer automatically inserts 4 seconds of silence between songs or broadcast segments.
 - Multi-function display clearly indicates transport mode, tape counter position, tape type and level indicator.
 - Multi-counter with both tape counter and run-time modes.
 - Independent L and R stereo level controls and master record level control.

Tascam 103 Advanced Features:

- 3-head system allows you to record on a tape and monitor it at the same time, without rewinding.
- MPX filter button eliminates pilot and sub carrier broadcast tones that can interfere with Dolby noise reduction.

202 mkIII Dual Auto Reverse Cassette Deck



The 202 mkIII provides high-fidelity sound reproduction and a wide frequency response, as well as a host of features that help you dub, edit, record or playback onto/from one or two cassettes easily and efficiently.

- Normal speed and high-speed dubbing.
- Autospacer automatically inserts 4 seconds of silence between songs or broadcast segments for pro quality tapes.
- Incorporates Dolby HX Pro sound technology to extend high frequency performance and minimize distortion on Normal, Metal and CrO2 tape.
- Allows you to quickly and easily create a professional-sounding composite tape from several sources. Functions like Intro Check, Computerized Program Search, Blank Scan and One Program quickly find the beginning of tracks you want.
- Twin two-head cassette decks in a durable rack-mount housing that can be used separately or in tandem during recording and playback for total flexibility.

- **Play** material on deck 1 while deck 2 records on one or both sides.
- **Record** simultaneously on both decks from an external master.
- **Play** back both sides of one or both decks in a continuous loop, up to five times.
- **Auto Reverse** automatically reverses tape direction during playback and record.
- **Repeat** rewinds tape and allows infinite looping during playback.
- **Timer** switch for unattended record/playback (timer required).

New! 302 Double Auto Reverse Cassette Deck

All the features of the 202 mkIII. The new 302 adds even more recording and playback flexibility. That's because the 302 is actually two fully independent cassette decks. Both decks have their own set of interface connectors, transport control keys and noise reducing functions.

- Auto-reverse capability on both decks
- Individual/simultaneous record capability, both decks
- Independent RCA unbalanced in/out for each deck
- Cascade and Control I/O let you link up to 10 additional machines for multiple dubbing or long playing record and playback applications.

CD-601 Professional CD Player



- Frame-accurate cueing precision, extremely high-fidelity and a small form factor make the CD-601 ideal for post-production applications where sound effects and music are "flow-in" from compact discs. The CD-601 integrates with most post-production equipment including mixers, video editors and computer studio controllers.
- Balanced XLR and unbalanced RCA outputs
 - Precision cueing control and Auto cue
 - Linear motor-driven pick-ups eliminate dead air
 - Optional RC-601 remote control adds additional features and conveniences.
 - Optional BU-2 RAM for instant start and seamless loops up to three minutes.

marantz

PMD-101/201/221/222/430 Portable Professional Cassette Recorders

The world standard for field recording, the PMD line is also the value leader. They all feature RCA line input/outputs, 1/4-inch headphone jack, built-in speaker, pause control, audible cue and review, tape counter, full auto shut-off and low battery indicator.



General Stereo/Mono Heads	PMD-101 Mono 2	PMD-201 Mono 2	PMD-221 Mono 3	PMD-222 Mono 3	PMD-430 Stereo 3
Inputs/Outputs					
Mic Input	1/4-inch	Miniplug	Miniplug	MinuXLR	1/4-inch
Condenser Mic	Built-In	Built-In	Built-In	Built-In	—
Remote Jack	—	Yes	Yes	Yes	—
Modular Tel. Jack	—	Yes	Yes	Yes	—
External Speaker Jack	—	Yes	Yes	Yes	—
Record Controls					
VU Meters	—	1	1	1	2 (Illuminated)
2-Speed Recording	Yes	Yes	Yes	Yes	—
Dolby B NR	—	—	—	—	Yes
dbx NR	—	—	—	—	Yes
Mic Attenuation	—	0-10dB -20dB	0-10dB -20dB	0-10dB -20dB	0-15dB -30dB
Ambient Noise Cont.	—	Yes	Yes	Yes	—
MPX Filter	—	—	—	—	Yes
Manual Level Control	—	Yes	Yes	Yes	—
Limiter	—	Yes	Yes	Yes	Yes
ALC	Yes	Yes	Yes	Yes	—
Peak Indicator	—	—	Yes	Yes	—
Playback Controls					
Pitch Control	±20%	±20%	±20%	±20%	±6%
Bias Fine Adj.	—	—	—	—	Yes
Tone Control	Yes	Yes	Yes	Yes	—
Half-Speed Playback	Yes	Yes	Yes	Yes	—
Memory Rewind	—	—	Yes	Yes	Yes

Telex ACC2000/4000 Series Cassette Duplicators

Designed for high performance and high production, Telex's ACC Series (ACC2000/ACC4000) and (ACC2000 XL/ACC4000 XL) of expandable duplicators also offer easy maintenance and unsurpassed ease of use. The ACC2000 is a two-channel monoaural duplicator, the ACC4000 is a four-channel stereo duplicator. Each produces 3 copies from a cassette master at 16 times normal speed and each can expand up to 27 copy positions (with additional copy modules). With the extra copy modules, you can duplicate up to 27 copies of a C-60 original in less than two minutes. And they copy both sides at once. The XL Series feature "Extended Life" cassette heads for increased performance and wear characteristics. They also offer improvements in wow and flutter, frequency response, signal-to-ratio and bias. Additionally the ACC4000 XL allows for either chrome or ferric cassette duplication. XL models are available in stereo (ACC4000 XL) or mono (ACC2000 XL) versions.

- | | |
|--|--|
| <p>Fingertip Operation</p> <ul style="list-style-type: none"> • Individual rotary audio level controls allow for an increase or decrease of audio levels as the master translates to the copies. • Peak reading LED indicators allow quick and accurate monitoring of audio fluctuations. • Slide A or B select button let you set up for duplication of either 1 side or both sides of a cassette at once. • Stop all tapes instantly, at any point during the copy or rewind cycle. | <p>Easy Maintenance:</p> <ul style="list-style-type: none"> • Slanted work surface and unique "heads-up" cassette platform allow less oxide build up on the heads and makes cassette loading and unloading much easier. • Each cassette position has a three point tape guidance system that eliminates skew problems. Plus, when a tape is inserted, each cassette position is activated to prevent unnecessary wear and tear on the tape head mechanism. • Audio and bias, along with head adjustments, are made easily from the top of the unit and a switch on the back engages the head and pinch roller for convenient cleaning. |
|--|--|

- | | |
|--|---|
| <p>ACC2000 Mono Master Module:</p> <ul style="list-style-type: none"> • 1/2 track, two-channel monoaural duplicator produces 3 copies from a cassette master at 30ips (16X normal speed). • Expands up to 27 copy positions by adding ACC2000 copy modules (four positions each). • Erase heads in the copy positions automatically erase existing audio as new material is being recorded. • Track select, short tape indicators, auto/manual operation. • Includes removable power cord and protective dust cover. <p>ACC2000 XL Mono Master Module:</p> <ul style="list-style-type: none"> • Same features as ACC2000, plus—Extended Life cassette heads. <p>ACC4000 Stereo Master Module:</p> <ul style="list-style-type: none"> • 1/4 track, four-channel stereo duplicator. Same features as ACC2000 Mono Master Module. • ACC4000 XL Stereo Master Module: • All features as ACC4000, plus—Extended Life cassette heads. Can be configured for chrome or ferric cassette duplication. | <p>ACC2000 Mono Copy Module:</p> <ul style="list-style-type: none"> • 1/2 track, two-channel monoaural copy module. • Each module has four copy positions with erase heads and controls for side select. • LED displays indicate end-of-tape status for each pocket. • Includes ribbon cables for connection to ACC2000 master and other copy modules. • Includes removable power cord and protective dust cover. <p>ACC2000 XL Mono Copy Module:</p> <ul style="list-style-type: none"> • Same features as ACC2000 Copy Module, plus—Extended Life cassette heads. <p>ACC4000 Stereo Copy Module:</p> <ul style="list-style-type: none"> • 1/4 track, four-channel copy module. Has all the features of the ACC2000 Copy Module. • ACC4000 XL Stereo Copy Module: • Same as the ACC4000 Copy Module, plus—Extended Life Copy Module. Configurable for chrome or ferric cassette duplication. |
|--|---|

Copyette EH Series Duplicators

The popular Copyette Series produces high quality, low cost cassettes in large quantities at nearly 16 times normal speed. This means you can reproduce both sides of a C-60 tape in less than two minutes. Available in two versions, the Copyettes are capable of duplicating either one cassette or three at a time. In addition each are available in both mono and stereo models. They couldn't be easier to use. You simply insert the cassettes, press the START switch and they do the rest. They rewind all tapes to the beginning, copy, then rewind to the beginning again before stopping. The whole process can be stopped at any time by pressing the CYCLE button. Side Select feature allows you to set them up to copy one side of a tape or both sides at once.

- | | |
|---|---|
| <p>Stereo Copyette 1+2+1</p> <p>Weighing only 8 lbs (3.6 kg), this unit has a durable, impact resistant housing and includes a removable power cord, carrying handle and protective cover. It also has an optical, non-reflective end-of-tape sensing system that provides gentle tape handling. A mono version is also available.</p> | <p>Stereo Copyette 1+2+3</p> <p>This duplicator copies both sides of three cassettes at once, yet it's as small as the 1+2+1. It weighs only 12 pounds (5.4 kg) and includes a hard cover to protect the unit when not in use. It uses all DC Servo motors for the ultimate in reliability. A mono</p> |
|---|---|

TASCAM 112 mkII Stereo Cassette Deck



The classic "no frills" production workhorse, the 112 mk II is a 2-head, rugged effective deck for musicians and production studios. Extremely robust and reliable, the 112 mk II is ideal for production mastering and madow. It also features a parallel port for external control and an optional balanced connector kit means it is flexible enough to integrate into any production studio.

- Utilizes Dolby B or C noise reduction with Dolby HX Pro.
- Automatically selects proper bias type, so you get optimal recording & playback response with Normal, Metal or CrO2 tape.
- Gear independent input dials let you dial in stereo VU calibration with one dial. You can also adjust for channel specific calibration.
- Offers two Autolocator buttons and a MEMO IN control. These controls allow you to select two points on any tape for one button forward/reverse to wherever the action is. Additionally RTZ (return to zero) quickly spools the tape back to 0000 on the tape counter.
- Rear-mounted RCA input/output jacks for easy connection to high-quality sources.
- Optional LA-112 connector provides additional balanced or unbalanced XLR inputs and outputs. Installation is simple and requires no special tools.
- 25-pin D sub connector (parallel port) on the back, links the deck to the optional RC-134 remote control unit or for fader start from any mixer that use the same protocol.

112R mkII Bi-Directional Stereo Cassette Deck

The 112R mkII is a somically uncompromising, auto reversing and continuous play cassette deck. It offers the finest independent head auto-reverse design at this price level, plus it has extra dubbing and editing features that make it ideal for long program recording.

- All the features of the 112 mk II plus—
- Three-head transport with separate high-performance record and playback heads. Manufactured from resilient Cobalt Amorphous materials, the independently-operating heads combine with precision FG servo direct-drive capstan motors to provide the highest standards of reproduction quality and performance.
 - Frequency response is 25 Hz to kHz with less than 1% total harmonic distortion.
 - Equipped with Hysteresis Tension Servo Control (HTSC) the 112R mkII virtually eliminates wow and flutter. HTSC is an advanced servo control system that maintains consistent back tension on the tape all through the reel, combating inconsistencies brought on by extreme temperatures and humidity.
 - Super Acculion Rotating Head System allows recording or playback tape direction to be changed with one button. A single-screw azimuth adjustment makes it easy to maintain the head alignment after many hours of continuous use.
 - For unattended record/playback of material that is longer than one side of a tape, there are two features that spare you from constantly attending to the deck. Auto Reverse mode plays or records in both directions before stopping, switching sides on the fly.
 - Continuous Reverse mode allows you to loop the tape during, layback up to 5 times, or record in both directions, without pausing to flip the tape and re-engage the record mechanism. Both features are accessible from the front panel, with one-button selection.

122R mkIII 3-Head Stereo Cassette Deck



The standard for production and broadcast facilities, the 122 mkII features smooth faultless tape handling mechanisms, a three head transport with high-performance Cobalt Amorphous record/playback heads and precision servo direct-drive capstan motors.

- All the features of the 112R mk II (no reverse of course) plus—
- XLR balanced and unbalanced RCA inputs and outputs are selectable with the flip of a back-panel switch. There are 1/4-inch inputs on the front panel for simple and direct plug-in of line-level gear.
 - MPX filter button eliminates pilot and sub carrier broadcast tones that can interfere with Dolby noise reduction.
 - Bias and level line tuners for each channel. These tuners can be used in conjunction with the one-touch 400 Hz or 10 kHz oscillator adjustment signals to get proper VU calibration before or during each recording session.
 - Record/mute autospacer automatically inserts 4 sec. of silence between songs or broadcast segments for pro quality tapes.

TO INQUIRE ABOUT YOUR ORDER:

800 221-5743 • 212 807-7479

OR FAX 24 HOURS: 212 366-3738

119 WEST 17TH STREET, NEW YORK, N.Y. 10011

Store & Mail Order Hours:

Sun 10-4:45 • Mon & Tues 9-6 • Wed & Thurs 9-7:15 • Fri 9-2 • Sat Closed

BUSINESS LEASING AVAILABLE

ALESIS 3630 Compressor

The 3630 provides two full-featured professional compressors... Dual mono or linkable true stereo operation... Choose between RMS and peak compression styles... Dual 12-segment LEDs display gain reduction and input/output levels...

t.c.electronic Wizard M2000 Studio Effects Processor

The M2000 features a "Dual Engine" architecture that permits multiple effects and six different routing modes... Temp Tap function lets you match effects to the beat... Preset "Gilding" (morphing) function ensures seamless transition between effects...

JBL

Control 5 Compact Control Monitor Loudspeaker

The Control 5 is a high performance, wide range control monitor for use as the primary sound source... 6-1/2 inch (165mm) low frequency driver provides solid, powerful bass response to 50 Hz... Both transducers are magnetically shielded... Dividing network incorporates protection circuitry to prevent system damage...



4200 Series Studio Monitors

The 4200 Series are console-top monitor models designed specifically for use in the near field... Unique Multi-Radial sculptured baffle directs the axial output of the individual components for optimum summing... Magnetically sensitive equipment like CRT's tape recorders, etc... Low frequency components also feature magnetic shielding...

XR-5 Features:

- High-speed (3-3/4 ips) four-track (2-tracks simultaneously) recorder with built-in Dolby noise reduction... Pitch controller varies the tape speed within a range of ±12%... Four inputs accommodate two microphones in channels one and two... Trim function lets you switch High/Mid/Low input levels for channels one and two... Alternate Mix mode lets you independently select the signal from the input jack or the tape playback... Post foldback (monitor) send function routes the foldback signal to the AUX send... Auto rehearsal mode lets you concentrate on the music instead of the machine

MIDI/TAPE multi-mix mode supports MIDI synchronization... Together with the Alternate Mix mode the XR-5 can simultaneously mix all MIDI sound source output with tape playback sound and effect output while monitoring!



The XR-7 has all the features of the XR-5 plus—

- 6 inputs, plus the ability to record to 4 tracks simultaneously... Dolby C noise reduction plus dual speed recording... During recording, Channels 5 and 6 are the primary inputs for microphones and acoustic instruments... Auto rehearsal mode lets you concentrate on the music instead of the machine

Fostex

XR-5/XR-7 Multitrackers

TASCAM PORTA 03 mkII Ministudio

The easiest way to get into multitrack recording, the PORTA 03 is an extremely economical 4-track recorder that lets you overdub as well as mixdown to standard cassettes.

- 4-track recorder with integrated two channel mixer... Two 1/4-inch MIC/LINE inputs with trim control... Extended dynamic range with Dolby B noise reduction... 3-digit tape counter keeps track where you are on the tape... Master level control for the entire mix, and the level sent to LINE OUT for stereo mixdown... Track selector indicates which of the 4 tracks you're recording to

- SAFE selection keeps you from inadvertently recording over tracks you've recorded earlier... Headphone jack for comfortable monitoring... RCA output jacks for mixdown to cassette



PORTA 07 Ministudio

The PORTA 07 packs high-end features into a compact and economical package. Achieves great sound with high speed tape transport, high-low EQ and DBX noise reduction.

- 4-track recorder with integrated four channel mixer... Two 1/4-inch LINE inputs and two 1/4-inch MIC/LINE inputs with trim control... Separate high and low EQ for each track provides 10dB of boost or cut... dbx noise reduction for improved signal-to-noise ratio... Punch-in/out manually or with optional RC-30 footswitch... Effects send with stereo return can be applied in varying amounts to all four channels

- Bounce or "ping pong" a submix of multiple mono or stereo tracks onto a single empty track, leaving the original submix tracks free to overdub new material onto... Monitor output makes it easy to connect an external monitor amplifier without repatching—all mixdown... Tape DIRECT OUTS are provided for integration with external mixers



424 mkII Portastudio

The 424 is premium Portastudio that takes multitrack recording to the next level. Features superior audio quality, balanced XLR inputs, enhanced equalization and a big-studio style AUX section.

- All the features of the PORTA 07 plus—... 4-track recorder with 8-input mixer (4 mono MIC/LINE inputs with 1/4-inch and balanced XLR jacks and 2 stereo inputs with 1/4" jacks)... Separate 3-band EQ section for each of the four mono channels with 10dB of boost or cut and sweepable midrange... Auto Punch in/out with rehearsal, plus a Repeat switch lets you set up a tape loop that goes over the same area of a tape while you practice your punch-in/out and overdub moves—without committing a single note to tape... Two independent dedicated AUX sends let you use more effects or use one as tape cue during tracking

- Dual-speeds, logic-controlled tap-transport system improves tape handling and sound quality... Select 3-3/4 inch per second HIGH speed for the best possible recording quality or NORMAL 1-7/8 ips speed... Monitor output makes it easy to connect an external monitor amplifier without repatching—all mixdown... Tape DIRECT OUTS are provided for integration with external mixers



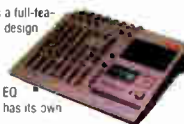
MIDI Musicians' Take Note—If you've got MIDI keyboards, drum machines and sound modules in your set up, you can exploit the power of "virtual tracking" with either the PORTA 07 or 424/464/488 Portastudio... The big benefit is that your MIDI tracks (called virtual tracks) don't actually have to be recorded until final mixdown, giving you lots more unused tracks to record on.

464 Portastudio

The functionality of a pro recording studio in a small, lightweight package, the 464 Portastudio is a full-featured eight input, four-track cassette recorder complete with a 12x2 internal mixer and dual buss design that lets you create separate recording and cue mixes.

- All the features of the 424 mk II plus—... 4-track recorder with 12 input mixer (4 mono MIC/LINE with 1/4-inch and balanced XLR jacks, 4 stereo 1/4" jack pairs... Channels 1-4 offer High and Low shelving EQs and a sweepable Mid EQ... Tracks 5-6 and 6-7 have shelving EQ only, while 9-10, 11-12 are best used with input that has its own internal EQ

- When 4 tracks are just not enough, then you need the perfect creative tool—the 488 mkII Portastudio... The most cost-effective 8-track recorder on the market, the 488 not only offers additional capacity but versatile capability and intuitive operation for easy capturing & manipulation of your ideas... Whether recording acoustic or electronic instruments or vocals, the 488 offers maximum creative freedom to produce your best work... The ultimate demo recording machine



488 mkII Portastudio

When 4 tracks are just not enough, then you need the perfect creative tool—the 488 mkII Portastudio... The most cost-effective 8-track recorder on the market, the 488 not only offers additional capacity but versatile capability and intuitive operation for easy capturing & manipulation of your ideas... Whether recording acoustic or electronic instruments or vocals, the 488 offers maximum creative freedom to produce your best work... The ultimate demo recording machine

- Includes phantom power for use with high-quality condenser microphones... Built-in mixer features low-noise circuitry, with 12 inputs and 2 group busses... Each of the 8 main input channels includes individual 3-band equalizers... Unique multi-mix mode with the capability of handling up to 20 inputs at mixdown

- The only 8-track cassette that offers a servo controlled tape transport complete with electronic braking... HTSC maintains precise and consistent tape tension from the beginning until the end of the tape... HTSC dynamically adjusts the back tension on the tape as it moves from one end to the other, allowing precise locating capability.

ALESIS

Monitor One

Near Field Studio Reference Monitor

Designed by engineers with decades of experience, the award winning Monitor One provides the last critical link in the recording studio's signal chain...

- Delivers excellent image and transient reproduction, powerful bass, and smooth, extended high frequency detail... Exclusive SuperPort speaker venting technology eliminates the "choking" effect of port turbulence... Ferrofluid cooled 1" silk-dome driver eliminates the harshness and ear fatigue associated with metal or plastic tweeters... Monitor One's powerful bass incorporates a proprietary 6.5" low frequency driver with a mineral-filled polypropylene cone...

Monitor Two

Mid Field Studio Reference Monitor

With much of today's popular music demanding more bass at louder volumes than a small near field monitor can possibly produce—the Monitor Two delivers—at a price no higher than many of these smaller speakers...

- 10" low frequency driver incorporates Alesis' SuperPort speaker technology to provide powerful, extended bass... 5" mid frequency driver offers exceptional mid frequency detail... Covered in a non-slip rubber finish, the Monitor Two comes in a mirror image pair for mixing accuracy



TANNOY

PBM Series II Reference Monitors

The PBM II Series is the industry standard for reference monitors. They feature advanced technologies such as variable thickness, injection molded cones with nitrile rubber surrounds...



PBM 5 II

- Custom 5" injection-molded bass driver with a nitrile rubber surround for extended linearity and accurate low frequency reproduction... Woofer blends seamlessly with the 1" polyimide soft dome ferro-fluid cooled tweeter providing extended bandwidth for extremely precise sonically-balanced monitoring... Designed for nearfield use, the PBM 5 II cabinets are produced from high density mdf for minimal resonance and features an anti-diffraction radiused front baffle design

PBM 6.5 II

- Transportable and extremely powerful, the PBM 6.5 II is the ideal monitor for almost any project production environment... 6.5" lowfrequency driver and 3/4" tweeter are fed by a completely redesigned hardwired hand selected crossover providing uncompromised detail, precise spectral resolution and flat response... Fully radiused and ported cabinet design reduces resonance and diffraction while providing deep linear extended bass

PBM 8 II

- High tech 1" soft dome tweeter with unmatched pattern control and enormous dynamic capability... Hard wired crossover features true bi-wire capability and utilizes the finest high power polypropylene capacitors and components available... Full cross-braced matrix mdf structure virtually eliminates cabinet resonance as a factor... Ensures precise low frequency tuning by incorporating a large diameter port featuring laminar air flow at higher port velocities



"THE PROFESSIONAL'S SOURCE . . .

FOR ORDERS CALL:

OR FAX (24 HOURS):

800-947-5508

800-947-9003

212-444-6698

212-444-5001

OVERNIGHT AND RUSH SERVICE AVAILABLE

E-Mail at 76623.570@compuserve.com

SPiRiT

FOLIO LITE

Compact Professional Mixing Console

- 12 inputs as standard (up to 16 at midxdown)
- 4 mono channels & 4 stereo channels
- Faders on all mono inputs and mix outputs
- Ultra low-noise (-129 dB (EN) mic inputs
- Musically responsive 2-band EQ
- 2 Aux sends on all channels; Aux 1 switchable prepost fader
- PFL Solo on all inputs; dedicated tape return
- Headphone socket and discrete L/R outputs for monitors
- 10-segment three-color bar graph metering
- Consistent high performance controls; global phantom powering
- Optional rack mounting panel and PortaPower Unit



FOLIO SI

Stereo Input Mixing Console

- All features of Folio Lite Plus—
- 16 inputs as standard (20 including stereo returns)
- 8 stereo channels and 2 mono channels, with 60mm faders
- Comprehensive 3-band EQ on inputs 1-14
- High pass filter on mono inputs
- Dedicated tape return and control room outputs
- Insert points on L and R master outputs
- 12-segment bar graph metering
- Main outputs are ground compensated and impedance balanced
- Free standing or rackmount versions available
- Optional Porta Power unit allows battery powered operation from various sources

FOLIO RAC PAC

4-Bus Multi-Purpose Mixing Console

- 14 input channels with up to 28 inputs at midxdown
- 2 stereo inputs with 60mm faders and 2-band EQ
- Low-noise (-129 dB) mic inputs
- Comprehensive 3-band EQ with swept Mid; plus high pass filter on every mono input
- 6 versatile Aux sends, 4 dedicated fully-fledged stereo returns plus 2 stereo effects returns
- Stereo solo-in-place (PFL) on every input channel
- Direct outputs on each mono channel for recording direct to multitracks
- Dedicated 2-track tape return routable to mix
- Global phantom powering, control BU rack-mount design



POWERSTATION

Powered Mixer

- Studio quality mixing with integrated power amp and effects provide an all-in-one solution for live performance.
- 8 mono and 2 stereo input channels
- 18 inputs at midxdown including tape and effects returns
- Bullet-proof UltraMic pre-amps with 60 dB gain range for stunning signal handling capability
- High-spec 265W x 265W (RMS) power amp
- Built-in Lexicon effects mixer
- Consistent high performance controls, PFL solo on all channels
- 3-band EQ with swept mid-frequency on mono channels
- 2 auxiliaries for effects and foldback
- 7-band precision dual graphic EQ
- High pass filter on mono inputs
- 40 Hz subsonic filter on outputs to protect speaker cabinets
- 48v phantom power
- Inserts on mono channels and main outputs
- Separate power amp input to amplify external sources
- Dedicated record outs and tape returns, dedicated mono output
- Rugged steel chassis, hinged cover for protection



PROTRACKER

In-Line Multitrack Recording Console

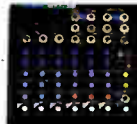
- In-line monitoring signal format: 2 discrete inputs per channel
- 8 channels with 60mm faders
- Expansion sockets for daisy-chaining ProTrackers
- High quality, high gain mic pre-amp (-129 dB), 5Hz-150kHz with switchable 48v phantom power on every input
- Switchable high pass filter on every channel
- Built-in limiter (300ms attack time/2 sec release) selectable on every channel
- Overload and limiter indicators on each channel
- Insert and aux switchable between channel and monitor paths
- Monitor fader and pan control
- Balanced tape & send/return switchable between -4dB & -10dB
- Separate pre-fade insert and return sockets eliminating the need for Y-cables
- Inputs switchable to mix to allow simultaneous front-of-house mixing and recording
- Mix routable to tape sends 7/8 for simultaneous 2-track recording on a single multi-track, without affecting multitrack recordings from channels 1 to 6
- Headphone monitoring of 2-track return aux 7/8 or mix
- Monitor outputs following headphone output
- Mix output & 2-track return accept +4dB XLRs or -10 dB RCA phono



SAMSON MIXPAD 9

Ultra-Compact 9-Channel Audio Mixer

A remarkably compact 9-channel mixer, the MIXPAD 9 offers professional audio performance and a wide range of user-intensive features. It boasts low noise and distortion specifications, includes wide-range gain trim controls for both mic and line inputs and provides exceptionally low group delay over the full frequency bandwidth for a more transparent, open sound. It also has a very high slew rate—usually found only on larger, more expensive mixing consoles—allowing it to react very quickly to transients and maintain a crisp, articulate sound. It offers phantom power (48v) for use with condenser microphones and an in-line power supply eliminates magnetically-induced hum.



- 3 mic/line inputs and 3 stereo channels (total 9 inputs)
- 2 auxiliary sends for effects and two Stereo returns.
- Independent 2-band shelved EQ, pan control for mono channels and balance control for stereo channels
- Adjustable mic input trims allow use with a wide variety of mics
- Phantom powered XLR mic input connectors.
- Peak LEDs for left and right main outputs
- Extremely durable, extruded aluminum chassis

MICRO SERIES 1202-VLZ

12-Channel Ultra-Compact Mic/Line Mixer

Usually the performance and durability of smaller mixers drops in direct proportion to their price. Fortunately, Mackie's fanatical approach to professional engineering has resulted in the Micro Series 1202-VLZ, an affordable small mixer with studio specifications and rugged construction. It delivers no-compromise, non-stop, 24-hour-a-day professional duty in permanent PA applications, TV and radio stations, broadcast studios and editing suites—where nothing must ever go wrong.



- Working S/N ratio of 90dB, distortion below 0.025% across the entire audio spectrum and +28 dB balanced line drivers.
- 4 mono channels with discrete, balanced balanced mic/line inputs and 4 stereo channels (12 inputs total)
- Line inputs and outputs work with any line level, from instrument level, to semi-pro -10dB to professional +4dB
- Switchable phantom-powered (48v) inputs for condenser mics
- Every input channel has a gain control, parametric EQ at 80 Hz, high EQ at 12.5 kHz and two aux sends with 20dB gain
- Master section includes two stereo returns, headroom level control and metering
- Sealed rotary pots resist and other contaminants

MS1402-VLZ

14 x 2 Compact Mic/Line Mixer

Mackie's fanatical engineers have done it again. Balanced inputs and outputs, 3-band EQ, AFL/PFL and deluxe tape monitor/Control Room feature. Nice long 50mm faders, six studio-quality mic preamps and extra AI: 3-4 stereo buses—less than 1.3 square feet of space.



- Studio grade mic preamps (ch 1-6) with high headroom, low noise and phantom power. Also incorporate low cut filters to cut mic handling thumps, pops and wind noise. Lets you safely use low shelving EQ on vocals
- Trim controls (ch 1-6) with ultra wide range (+10 to -40dB) handle everything from hot digital multitrack leads to whispering lead singers and older, low-output keyboards
- Pan control with constant loudness and high L/R attention so you can pan hard left or right without bleed-through
- Two aux sends per channel with 15dB extra gain above Unity
- 60mm log-taper faders are accurate along their whole length of travel and employ a new long-wearing contact material for longer fader life & super-resistance to dust/smoke etc.
- Control room-phone matrix adds discrete bi-tape monitoring, midxdown and live sound versatility
- Mute switch routes channel output to extra ALT 3-4 stereo bus. Use it for feeding multitrack recorder channels, creating a sub-group via control room/phones matrix monitor or a signal before bringing it into the main mix or creating a "mix minus"
- Solid steel chassis instead of aluminum or plastic

The new MS-1202, 1402 and 1604 all include VLZ (Very Low Impedance) circuitry at critical signal path points. Developed for Mackie's acclaimed 8-Bus console series, VLZ effectively reduces thermal noise and minimizes crosstalk by raising current and decreasing resistance.

CR-1604 VLZ

16-Channel Mic-Line Mixer

The hands-down choice for major touring groups, studio session players, as well as broadcast and sound contracting. The new CR-1604 VLZ features everything you would expect from a larger console, and then some! 24 usable line inputs with special headroom/ultra-low noise Unityplus circuitry, seven AUX sends, 3-band EQ, constant power pan controls, 10-segment LED output metering and discrete front end phantom-powered mic inputs.



- Lowest noise and highest headroom (90 dB working S/N and 108 dB dynamic range). Many drummers consider it the only mixer capable of handling the attack and transients of acoustic and electronic drums.
- Genuine studio-grade phantom powered, balanced input mic preamps on channels 1-6. All CR-1604 VLZ (and optional XLR10 for ten more) discrete input mic preamp stages incorporate four contiguously pair, large-emitter geometry transistors. So, whether recording nature sound effects or heavy metal, mixing flutes or kick drums, you get the quietest, cleanest results possible.
- True 4-bus design with channel as goes to 1-2, 3-4 or main L-R
- 3-band EQ with mid-frequency sweep and low cut switch
- AFL/PFL solo and mute switches with over-ride and signal present indicators
- Rear panel features include insert point and 1/4 inch XLR connectors on every channel, as well as RCA tape inputs/outputs
- New, standard size channel trim pots are found at the top of each channel
- Rotary input/output "pod" allowing three different positions for set-up

TASCAM

M2600 mkII Series

16/24/32-Channel 8-Bus Mixers

LOW NOISE CIRCUITRY

- Combining completely redesigned low noise circuitry with Absolute Sound Transparency™, the M-2600 delivers high-quality, extremely clean sound. No matter how many times your signal goes through the M-2600, it won't be colored or altered. The signal remains as close to the original as possible. The only coloring you hear is what you add with creative EQ and your outboard signal processing gear.
- Double reinforced grounding system eliminates any hum
- World-class power supply provides higher voltage output for better headroom and higher S/N ratio



PREMIUM QUALITY MIC PRE-AMPS

- The M-2600's mic pre-amps yield an extremely low noise floor, enormous headroom and an extremely flat frequency response. It also increases gain control to an amazing 51dB. Plus, you get phantom power on each channel!
- Accepts balanced or unbalanced 1/4" inputs, and low-impedance XLR jacks. Better still, the TRIM controls operate over a 51dB input range. For the hottest incoming signals, all it takes is a press of the -20 dB PAD button atop each channel strip to bring any signal down to manageable levels. Plug in anything—keyboards, guitars, basses, active or passive microphones, samplers and more.

THE BEST AUX SECTION IN THE BUSINESS

Versatile AUX section has 8 sends total: 2 x stereo. Send signal in stereo or mono, pre- or post-fader. Available all at once. Return signal through any of 6 stereo paths.

FLEXIBLE EQ SECTION

Bi-directional split EQ means you can either use both EQ sections in the Monitor or Channel path. 3. default effect: alter together with one bypass button. Other 4-multiply priced mixers will lock the shelving mix into the Monitor path only, limiting your EQ application.

ADVANCED SIGNAL ROUTING OPTIONS

Direct channel input switching. Assign to either of eight buses direct to tape or disk or to the master stereo bus. Because the group and direct-out jacks are one and the same, you can select either without re-plugging.

ERGONOMIC DESIGN

The M-2600 has a big studio feel. All 16 buttons are tightly spring loaded, lock into place and accommodate even the biggest fingers. The faders and knobs have a light, smooth "responsive" feel and are easy to see, reach and manipulate. Center detent's assure zero position for EQ and PAN knobs. Semcok long throw 100mm detent glide nicely yet allow you to coast on them securely without fear of accidentally slipping to another position.

BEHRINGER

MDX 1200 Autocom



- Attack and release times with Intelligent Program Detection, prevents common adjustment errors
- Newly-developed, powerful noise gate
- Switchable soft knee/hard knee characteristics for varied sound pressure levels
- Bright, illuminated LEDs show gain reduction

MDX 2100 Composer



- Integrated auto/manual compressor, expander & peak limiter
- Compresses "musically" in dynamic range without any audible "pumping" or "breathing"
- Attack & release times are controlled automatically or manually
- Interactive Gain Control (IGC) combines a clipper and peak limiter for distortion-free limitation on signal peaks
- Stereo-balanced inputs and outputs are switchable between +4dB and -10dB

Stewart

Power Amplifiers

PA-1000

PA-1400

PA-1800



- High frequency switch mode power supply fully charges 120,000 times per second (1000 times faster than most power supplies) requiring far less capacitance for filtering and storage
- High speed recharging also reduces power supply "sagging" that affects other designs
- Incredibly efficient: 5 PA-1000 or PA-1400's (4 PA-1800's) can be run on one standard 20 amp circuit. No need for staggered turn-on configurations or other preventive measures when using multiple amp set-ups
- They produce smooth and uncolored sound, while offering very full detailed low end response and tons of horsepower
- Each amp carries a full 5 year warranty on parts and labor
- PA-1000 weighs 9 lbs., is 15" deep and occupies one standard rack space. Delivers 1000 watts into 4Ω when bridged to mono
- PA-1400 weighs 16 lbs., is 15" deep and takes 2 standard rack spaces. Delivers 1400 watts into 4Ω when bridged to mono
- PA-1800 weighs 17 lbs., is 17" deep and takes two rack spaces. Delivers 1800 watts into 4Ω when bridged to mono

BGV

Performance Series Amplifiers

Performance Series 1

300 Watt Power Amplifier

- Measuring only 3.5 inches high and weighing 26 pounds, the Series 1 delivers more than 150 watts per channel.
- Its welded steel chassis is unbelievably strong while a custom heat sink extension provides exceptional thermal capacity.
- An internal fan provides quiet background noise levels for critical monitoring applications and when pushed hard the cooling system insures continuous cool operation even in the most demanding situations.
- Active balanced inputs with both XLR and 1/4" phone jacks
- Supplied with quality 5-way binding posts for highly reliable speaker connection
- Front panel handles are reversible for either rack mount installation or easy handling
- LEDs are provided for signal presence and clip indication. The detented gain controls have large knobs for easy front panel adjustments

Performance Series 2

600-Watt Power Amplifier

- Same as above except the Series 2 weighs 32 pounds and delivers more than 300 watts per channel!

Performance Series 4

1200-Watt Power Amplifier

- Same as above except the Series 4 weighs 53 pounds and delivers more than 600 watts per channel.
- Has a switch selectable clipping eliminator that prevents damage to the speakers

TO INQUIRE ABOUT YOUR ORDER:

119 WEST 17TH STREET, NEW YORK, N.Y. 10011

Store & Mail Order Hours:

Sun 10-4:45 • Mon & Tues 9-6 • Wed & Thurs 9-7:15 • Fri 9-2 • Sat Closed

800 221-5743 • 212 807-7479

OR FAX 24 HOURS: 212 366-3738

BUSINESS LEASING AVAILABLE



TASCAM

DA-P1 Portable DAT Recorder



- Rotary two head design and two direct drive motors for the best transport in its class
- XLR-balanced mic/line inputs (with phantom power) accept signal levels from -60dB to +4dB
- Analog line inputs & outputs (unbalanced) plus S/PDIF (RCA) digital inputs and outputs enable direct digital transfers
- Uses next generation A/D & D/A converters for amazing quality
- Supports 32/44 1/4 48kHz sample rates & SCMS-free recording
- MIC limiter and 20dB pad to achieve the best possible sound without outside disturbances
- TRS jack level control to monitor sound with any headphones
- Built tough, the DA-P1 is housed in a solid, well-constructed hard case. It includes a shoulder belt, AC adapter & 1 battery.

SONY

TCD-D8

DAT Walkman Player/Recorder



- Long Play (LP) mode allows 4 hours of recording/playback of 12-bit audio on a single DAT cassette
- Equipped with digital coaxial and optical input connector. Also has Analog Mic and Line inputs
- High-speed Automatic Music Sensor search function finds & plays tracks, skips forward or back up to 99 tracks, all at 100x normal speed
- Digital Volume Limiter System increases listening comfort & sound quality by automatically adjusting for sudden level changes
- Two-speed cue-review lets you hear sound while player is in fast-wind modes, up to 3x or 25x normal speed
- LCD display with backlit windows clearly shows recording level, track number, operating status and 4-segment battery indicator even in low ambient light conditions
- Optional RM-D3K System Adapter Kit for complete digital interface. It has input/output connectors for both the optical cable & the coaxial cable. Also includes a wireless remote control.

TCD-D10 PRO II

Portable DAT Recorder



- Has balanced XLR input, switchable mic (-60dB) or line (+40dB) inputs. A 12-pin digital connector provides interfacing with AES/EBU digital signals of 32/44 1/4 48 kHz sampling rates
- Comprehensive self-diagnostics function constantly monitors the rotation of the head drum, capstan and reels. The tape transport mode and load/unload time are continuously checked as well
- Up to 99 start IDs can be recorded in the subcode area. When the record button is pressed, the start ID is recorded automatically for 9 seconds. During recording, it can also be added manually to any position of the tape. Search for start IDs is 100x normal speed
- 20-segment digital peak level meters include overload indicators. Closely tracks recording level and provides level indications
- During playback, the date and time of recording is displayed
- Has a record-level limiter with a fast attack time of 300ms. Mic attenuator prevents distortion by suppressing signal level 20 dB
- Immediate playback is possible through a built-in speaker
- Supplied wired remote controller also accepts a mic holster. Two mic stand screw adapters are also supplied
- Supplied NP-22H rechargeable battery provides 1 1/2 hours of operation. Optional NFA-D10 battery acquirer enables 1 hour on AA batt. Supplied ACP-88 AC adapter operates on 100-240V 50/60 Hz

PORTADAT

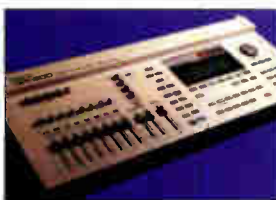
PDR1000/PDR1000TC

Professional Portable DAT Recorders



- Direct drive transport with 4 heads for confidence monitoring
- Balanced XLR mic and line analog input; and two RCA analog line outputs. Digital inputs and outputs include S/PDIF consumer (RCA) and AES/EBU professional (XLR)
- Left/Right channel mic input attenuation selector (0dB/-30dB)
- 48V phantom power, built-in limiter & internal monitor speaker
- Illuminated LCD display shows clock and counter, peak level metering, margin display, battery status 10 number tape source status and machine status
- Supplied Nickel Metal Hydride rechargeable battery powers the PDR1000 for two hours. The battery has no "memory effect" and is charged in two hours with the supplied AC Adapter/charger
- PDR1000TC Additional Features:**
- In addition to all the features of the PDR1000 recorder the PDR1000TC is equipped to record, generate and reference time code in all existing international standards
- All standard SMPTE/EBU time codes are supported, including 24.25, 29.97 (drop frame and non-drop frame) and 30 fps
- External synchronization to video, field sync and word sync

Roland DM-800



Digital Audio Workstation

A compact, stand-alone multi-track disk recorder that provides an amazing array of features at an unbelievably low price. Whether for music production, post production or broadcast, the DM-800 lets your work easier and faster. A full function workstation, the DM-800 performs all digital mixing operations from audio recording, to editing, to rotation track-bouncing, to final mixdown. It fully supports SMPTE and MIDI time codes and also features a built-in Sample Rate Resolver to synchronously lock to any time code.

HIGHEST QUALITY SOUND

- Sampling rates of 48/44 1/2 42 kHz • 24-bit internal processing
- 18-bit A/D and D/A with 128 and 8 times oversampling

FULL AUTOMATION

- Time compression/pitch compressor
- Non-destructive cutting, erasing, copying
- Fast looping for music or ambience editing
- Six levels of waveform zoom
- Optional RS-422 interface

- Microscope editing of automation data
- Dynamic and snapshot automation of level pan 2-band EQ, including frequency select, boost and cut • Phase level editing of level, crossfade and fade in/out

TRIGGER FEATURES

- Trigger mode to play any combination of 8 tracks for vocal fly ins or sound effects placements
- Advanced trigger mode for live operation with preset or dial up cue of phrases to be played one after another

PROJECT CATALOGING

- Up to 150 projects on line at once
- Cataloging of sound effects and projects
- Easy transfer of sounds from one project to another

VIDEO OUT

- Composite S-video digital RGB output
- All track overview with infinite level of project zoom
- Views of phase and waveform editing
- Very accurate level meters
- Track status and time location

MIDI FEATURES:

- MIDI machine control • Internal tempo maps • MIDI clock and song position pointer output • 8 MIDI triggers for instant phase playback • MIDI trigger for record and punch in/out • Tempo maps from external sequences, MIDI or tap input

RECORDER OPTIONS

- Records to standard SCSI hard drives
- Up to 24 hours recording time possible
- Uses MD Sequence or Jazz drives for last project change overs

POWERFUL EDITING

- Full digital patch bay
- Stereo AUX send buss, 2 stereo AUX returns
- Digital stereo input and two digital stereo outputs • Direct channel outs
- 2 balanced analog inputs with gain controls and 4 balanced analog outputs

FLEXIBLE I/O STRUCTURE

- Full digital patch bay
- Stereo AUX send buss, 2 stereo AUX returns
- Digital stereo input and two digital stereo outputs • Direct channel outs
- 2 balanced analog inputs with gain controls and 4 balanced analog outputs

ACCURATE SYNCHRONIZATION

- Frame accurate sync to any time code
- Generates/reads SMPTE time code: 24.25, 29.97 (drop frame) and 30 frames per second • Locks to MTC

Digital Multi-Track Recorders

TASCAM DA-88

The first thing you notice about the eight channel DA-88 is the size of the cassette - it's a small Hi-8 video cassette. You'll also notice the recording time - up to 120 minutes. These are just 2 of the advantages of the DA-88's innovative use of 8mm technology.



- ATF system ensures no tracking errors or loss of synchronization. All eight tracks of audio are perfectly synchronized. It also guarantees perfect tracking and synchronization between all audio tracks on all cascaded decks - whether you have one deck or sixteen (up to 128 tracks)
- Incoming audio is digitized by the on-board 16-bit A/D at either 44.1 or 48kHz. The frequency response is flat from 20Hz to 20kHz while the dynamic range exceeds 92dB
- Execute seamless Punch-ins and Punch-outs. This feature offers programmable digital crossfades, as well as the ability to insert new material accurately into tight spots. You can even delay individual tracks to generate special effects or compensate for poor timing

SONY PCM-800



- Flawless sound quality, outstanding reliability and professional audio interfacing with AES/EBU digital I/O and XLR analog I/O connections
- Combines audio functions such as precise auto punch in/out digital cross fade technology, external synchronization with SMPTE/EBU time code and selectable sampling frequencies of 44.1 and 48kHz
- Shuttle dial for precise tape control, variable speed playback of 6% in 0.1% increments and a flat frequency response from 20Hz to 20kHz
- Operate up to 16 PCM-800's in perfect sync with optional RSC-S1 sync cables, for up to 128 channels of digital audio recording
- Optional DABK-801 Sync Board provides SMPTE/EBU time code generation and chase sync. It locks to the incoming time code with subframe accuracy offset - ideal for audio-to-video applications. Also synchronizes to external video reference signal
- Optional RM-D800 provides comprehensive remote control over all PCM-800 functions. The RM-D800 can control up to six units for up to 48 channels of digital audio

ALESIS adat xt

8-Track Digital Audio Recorder

An incredibly affordable tool, the ADAT-XT sets the standard in modular digital multitrack recording. With new features & enhanced capabilities, the ADAT-XT operates up to four times faster than the original ADAT, offers an intelligent software-controlled tape transport and provides onboard digital editing and flexible autolocator.



Stunning Audio:

- Incorporates ultra-high fidelity 18-bit, 128 X oversampling A/D converters which provide better-than-CD audio quality
- For outputs, the D/A converters provide 20-bit, 8x oversampling performance for a flatter frequency spectrum, improved phase response and much less low-amplitude distortion
- 20 Hz to 20 kHz ± 0.5 dB frequency response 92dB S/N ratio, crosstalk between channels better than -90dB @ 1kHz

Onboard Autolocator with Auto Record:

- Onboard 10-point autolocate system provides quick access to multiple tape locations. Four specialized locate points make your recording sessions quicker and easier
- Auto play the moment any autolocate point is reached. Auto Return automatically rewinds at the end of a loop
- Auto Record function lets you automate punch-in/punch-out times that are accurate to 1/100th of a second
- Rehearse Mode allows you to enter or exit record modes without actually laying tracks to tape
- To record on the fly, you can even use the individual Record Enable buttons to punch in and out of tracks
- Includes remote control with transport and locate functions, offers a footswitch jack for hands-free punch-in

Intelligent Transport:

- Advanced transport software continuously monitors autolocator performance and the head constantly reads ADAT's built-in sample accurate time code - even in fast wind modes
- Dynamic Braking software lets the transport quickly wind to locate points while gently treating the tape

Flexible Inputs and Outputs:

- Servo-balanced 56-pin ELCO connector operates at +4dB to interface with consoles with +4 dB balanced inputs/outputs. Also unbalanced -10dB inputs/outputs (phono connectors).
- Has an electronic patch bay built-in so it can be used with stereo and 4-bus consoles
- Multiple Optical Digital I/O carries up to eight tracks at once. The digital I/O combined with the ADAT Synchronization Interface make it completely compatible with any ADAT-format recorder or other devices that use Alesis' proprietary digital protocol.

Digital Editor:

- Make flawless copy/paste digital edits between machines or even within a single unit. Track Copy feature makes a digital clone of any track (or group of tracks) and copies it to any other track (or group) on the same recorder. This allows you to assemble composite tracks for digital editing
- Use multiple ADAT-XTs and Tape Offset lets you copy and paste not only track to track, but from location to location. Tape Offset assembles your project with a minimum of repetitive overdunding and changes the tape position of a slave XT to its master, so you can "fly" audio to different locations on each tape
- Track Delay can delay the time reference of a track by up to 170ms. Also easily change the groove of a tune. Track Delay is individually adjustable on each channel and is excellent for fixing slight timing errors in recorded tracks (player lags behind or rushes the beat). In recordings with multiple microphones, you can time-align each track, precisely compensating for the spacing between mics with accuracy to 0.0001 seconds

Panasonic

SV-3800/SV-4100

Professional DAT Recorders



Designed for professional applications, the SV-3800/SV-4100 have highly accurate and reliable transport systems with search speeds up to 400X normal, and 20-bit D/A converters to satisfy the highest professional expectations both in terms of sound and functionality.

SV-3800 Features:

- Recording via analog inputs offers sampling rates of 44.1 or 48kHz. When recording through digital inputs, it automatically clocks to incoming frequencies of 32/44.1 or 48kHz
- XLR-balanced digital inputs/outputs plus consumer format coaxial and optical inputs/outputs. XLR-balanced analog stereo inputs/outputs. Output level is selectable between +4dB and -10dB. The input level is +4dB
- Built-in shuttle wheel has two variable speed ranges: 3 to 15x in Play mode and 1/2 to 3x normal speed in Pause mode
- High speed transport enables searching up to 250x normal speed. Search up to 400x normal speed is possible once the tape has been scanned in Play, FF or REV mode. This ensures access to any point on a two-hour DAT in under 30 seconds
- Ramped record mute and unmutate with three seconds fade-in and five seconds fade-out provides automatic level changes at the start and end of a recording
- Comprehensive display includes program numbers, absolute time, program time, remaining time and Table of Contents

SV-4100 Has all the features of the SV-3800 Plus... Offers enhanced performance required for professional production, broadcast and live-sound systems. Features such as instant start, external sync capability and enhanced system diagnostics make the SV-4100 the DAT quality standard.

Fostex

D-5

Digital Master Recorder

- With professional features and a consumer price tag, the D-5 satisfies a lot of requirements. It records on playaback four hours of music, includes optical and digital input/output, and TOC functions that are as easy to use as a CD player. It's also equipped with basic pro features such as iD editing function, GPI and XLR connectors and 300X speed locate and search functions

- Playabck/record audio with 32/44 1/4 48 kHz sampling in SP (standard play) mode. Equipped with LP (long play) mode, it can play/record at 32 kHz up to 4 hrs on a 120 minute cassette
- Analog interface includes switchable (+4dB/-10dB) balanced and unbalanced XLR inputs and outputs
- AES/EBU digital interface (XLR) for professional use and optical (S/PDIF) input/output for consumer/semi-pro connections
- 5-pin GPI input connector allows: Play, Stop & S-ID search to be implemented through commands from an external source
- Records CD-Q code sync iD, enabling precise music start up
- When performing digital signal transfer from CD through its optical interface, the D5 precisely records S-IDs according to the track number and index information of the CD-Q code. So even if there is a break in the middle of a song or there isn't a non-recorded section between two songs, you can locate to the S-ID location (eg. beginning of song) precisely

D-10

Digital Master Recorder



- Switchable 44.1 and 48kHz sampling frequencies
- Analog interface includes switchable XLR-balanced (+4dB) and unbalanced RCA (-10dB) inputs and outputs
- Equipped with and XLR-balanced AES/EBU digital interface and optical (S/PDIF) input/output conforming to IEC consumer
- Built-in 8MB RAM (4 MB x 2) offers instant start as well as scrubbing at 1x/normal accuracy
- Advanced jog/shuttle for precision cueing and monitoring
- Auto Cue provides automatic locating to the exact start of audio modulation during ID search and tape loading
- Universal GPI input/output enables easy and fast assemble editing, based on A-time between a pair of D-10's
- Switchable 2-position reference level, -12dB/-20dB
- Start and Skip IDs as well as up to 799 P-NOs can be recorded and played back
- 10-digit key-pad lets you store and recall 100 cue points
- Continuous or peak reading level meters can display available headroom with an accuracy of 0.1dB
- Reads and displays A-time or Pro R-time, also provides PCM monitoring
- Optional 8333 interface card adds timecode and RS-422 (X2) functionality to the D-10
- Reads an external timecode and records on the sub-code area
- Reproduces s and outputs the timecode from sub-code area
- Switchable RS-422 and ESbus protocols. Using the ESbus, up to 16 D-10s can be easily chained

AD INDEX & READER SERVICE PAGE

PAGE	READER SERVICE NUMBER	ADVERTISER
98	001	Acoustical Solutions
223	002	Acoustic/Samick
316	003	Acoustic Sciences Corporation (ASC)
242	004	Acoustic Systems
329	005	AcuNet
87	006	Adams-Smith
242	007	AdB International
252	008	Advance Recording Products
54-55	009	Akai
23	010	AKG
IFC	011	Alesis (MidiVerb 4)
30-31	012	Alesis (NanoVerb)
197	013	Allen & Heath
297	014	Allen Sides' Microphone Cabinet
70	015	AMEK
51	016	AMS/NEVE
233	017	Anthony DeMaria Labs
332	018	AP Audio/Ace Products
38-39	019	Aphex Systems
61	020	Apogee Electronics
155	021	Applied Research & Technology (ART)
82	022	ARCooustics
326	023	Ariza Recording Studio
144	024	Ashly
244	025	Athan
234	026	ATM Fly-Ware
208	027	AudioForce
189	028	Audio Precision
43	029	Audio-Technica
295	030	Audiotek
229	031	Audio Toys (ATI)
310	032	Avalon Design
52	033	Azden
340-341	034	B & H Photo-Video
342-343	035	B & H Photo-Video #2
11	036	BAG END Loudspeakers
109	037	BASF
259	038	beyerdynamic

PAGE	READER SERVICE NUMBER	ADVERTISER
79	039	Bryston
215	040	BSS
191	041	Burlington A/V Recording Media
254	042	Cabletek
231	043	CAD
80	044	CAIG Laboratories
190	045	Cal Switch
235	046	Caruso Music
257	047	Carver
291	-	Carvin
116	048	Central Research Laboratories
164	049	Conservatory of Recording Arts & Sciences
126	050	Creamware
65	051	Crown
294	052	D & R USA
127	053	Dale Pro Audio
89	216	The DAT Store
154	054	David Carroll Electronics
261	055	dB Technologies
59	056	dbx Professional Products
239	057	Demeter Amplification
159	058	Denon Electronics
309	059	Desper Products
135	060	DGS Pro Audio
6-7	-	Digidesign
139	061	Digital Audio Labs
19	062	DigiTech
110	063	Disc Makers
32-33	064	Dolby
154	065	Dreamhire
29	066	Duracell USA
243	067	Dynaudio Acoustics
95	068	EAR Professional Audio/Video
244	069	Earthworks
217	070	Eastern Acoustic Works (EAW)
181	071	Eastman Kodak
123	072	Electro-Voice (EV)
299	073	Electro-Voice (EV) #2
97	074	Emagic (Audio Logic)

PAGE	READER SERVICE NUMBER	ADVERTISER
99	075	Emagic (Audio Logic) #2
40	076	Emagic (ZAP)
195	077	Ensoniq
203	078	Equi=Tech
47	079	Euphonix
220	080	Europadisk
63	081	Event Electronics (20/20)
167	082	Event Electronics (RØDE Classic)
267	083	Event Electronics (RØDE NT2)
307	084	Eventide
179	085	Fairlight
327	086	Fender
75	087	Focusrite
298	088	Forge Recording Studios
125	089	Fostex
205	090	Full Sail Recorders
175	091	Furman Sound
204	-	Future Disc Systems
185	092	Garwood Communications
152	093	Gefen Systems
131	094	GENELEC
208	095	Gepco
236	096	Gold Line
206	097	Grandma's Music & Sound
193	098	Groove Tubes Audio
101	099	Hafler
171	100	Harrison/GLW
117	101	HHB Communications
315	102	HHB Communications #2
183	217	The Hollywood Edge
199	103	Hot House Professional Audio
164	104	illbruck
246	105	Industrial Acoustics Company
293	106	Innovative Quality Software
216	107	Institute of Audio Research
BC	-	JBL Professional
48	108	Joemeek
188	249	The John Hardy Company
333	109	JRF/NXT Generation
193	110	KABA Research & Development

PAGE	READER SERVICE NUMBER	ADVERTISER	PAGE	READER SERVICE NUMBER	ADVERTISER	PAGE	READER SERVICE NUMBER	ADVERTISER
0-21	111	Korg/Soundlink DRS	74	155	Platinum Audio	3	198	Studer Professional Audio
31	112	KRK Systems	78	156	Power Technology			Equipment
71	113	Kurzweil Music Systems	248	157	ProSound & Stage Lighting	100	199	Studer Professional Audio
11	114	Lectrosonics	296	158	QCA			Equipment #2
31	115	Leo's Professional Audio	219	159	QSC Audio Products	218	200	Studio 440
3, 67	116	Lexicon	9	160	Quantegy/Ampex	16-17	201	Studio Audio Digital
73	118	Lighthouse Digital Systems	152	161	Quintessential Sound			Equipment (SADiE)
6	-	Los Angeles Recording Workshop	111	162	Rane	236	202	Studio Consultants
			190	219	The Recording Workshop	133	203	Studiomaster
56	119	MacBEAT	238	163	Rhythm City	94	204	Summit Audio
10	120	Mackie (CR1604-VLZ)	298	164	Rich Music	41	205	Sweetwater Sound
2-13	121	Mackie (HR Series)	129	165	Ricoh	132	206	Sweetwater Sound #2
96	122	Magna-Tech Electronic	237	166	Rock 'n Rhythm	42	207	Symetrix
46	123	Manhattan Production Music	207	167	Rocket Lab	72	208	Systems
10	124	Manley Laboratories	153	168	Roland (DM-800)			Development Group (SDG)
3	125	Markertek Video Supply	252	169	Rosati Acoustics + Multimedia	2	209	Tannoy
78	126	Martinsound (Audiomate)	255	170	RPG Diffusor Systems	24-25	210	Tascam (DA-38)
77	127	Martinsound (Martech)	113	171	RSP Technologies	26-27	211	Tascam (M2600mkII)
75	128	Martinsound (Neotek)	248	172	Rumbo Recorders	201	212	Tascam (DA-P1)
27	129	MDI Precision Motor Works	135	173	Russ Berger Design	53	213	TC Electronic
19	130	MediaFORM	250	174	Sabine	151	214	Telex
72	131	Merging Technologies	325	175	Sam Ash Professional	147	215	That
13	132	Meyer Sound	209	176	Sascom Marketing	191	220	Thoroughbred Music
73	133	Micro Technology Unlimited (MTU)	120	177	Schoeps	316	221	Time Capsule Mastering
			295	178	Selco Products	124	222	Tower Mastering
22	134	MicroTech Conversion Systems	15	179	Sennheiser	289	223	Troisi Digital Companion
30	135	Millennia Media	62	180	Sheffield Audio-Video	64	224	Tube-Tech
13	136	Mix en Espanol			Productions	254	225	Ultimate Ear
69	137	Muth Audio Design	198	181	Simon Systems	177	-	Universal Studios
32	138	National Sound and Video	1	-	Solid State Logic (SSL)	178	226	Uptown Automation Systems
87	139	Neumann/USA	251	-	Solid State Logic (SSL) #2	333	227	Vertigo Recording Services
87	140	Neutrik	121	182	Sonic Solutions	50	228	Vestax Musical Electronics
66	141	Northeastern Digital	118	183	Sound Ideas	232	229	Video Tape Products
81	142	NOW! Recording Systems	83	184	Soundcraft (DC2020)	146	230	Viking Audio
08	143	Oasis Mastering	249	185	Soundcraft (Ghost)	98	231	Walters-Storyk Design Group
03	144	Ocean Way Recording	265	186	Soundscape Digital	102-103	232	Waves
24	145	Oram	107	187	Soundtracs (Solitaire)	247	233	Waves #2
7	146	Otari (Elite)	283	188	Soundtracs (Topaz)	234	234	West L.A. Music
63	147	Otari (Status)	126	189	SoundWare	221	235	Whirlwind
65	148	Pacific Microsonics	207	190	Speir Music	256	236	Whisper Room
43	-	Panasonic	49	191	Spendor/Sascom Marketing	238	237	White Instruments
1	149	Peavey (DTH S/SF Series)	34	192	Spirit (Notepad)	92-93	238	Yamaha
63	150	Peavey (VMP 2)	35	193	Spirit (Folio SX)	245	239	Yamaha (MD4)
17	151	Peavey (PVM T9000)	321	194	Spirit (8-Bus)	308	240	Yorkville
6	152	Pelonis Sound & Acoustics	253	195	Stanford Research Systems	134	241	Z Systems
6	153	Phonic	196	196	Steady Systems	258	242	Z Systems #2
85	154	Pinnacle Micro	81	197	Stewart Electronics			

—FROM PAGE 66. T2 IN 3-D

ford to the site for the final mix. Blackford also put his mixing skills to work when needed. Updates on the panning software came as regularly from Palo Alto as the suggestions and corrections did from Orlando.

The music mix sessions went smoothly and were completed in only three nights. Dialog also went well, but it was no surprise that quite some time needed to be devoted to the spectacular Foley and sound effects. Even last-minute sound design changes were made. At one point in the film, there are puffs of steam where appropriate sounds were originally spotted to the tracks for later mixing. Once in the auditorium, the Micelis serendipitously noticed the sound of the liquid nitrogen blasts and instead decided to program LN2 blasts into the show control computer where needed and use the natural sound instead. However, for the most part, the theater sessions were devoted to perfecting the position, tonality and ambience of more than 1,000 discrete sonic sensations that contribute to the total presentation.

Even with all the theatrical elements, the system uses only one live microphone. Everything else is canned. Because all the live actors are lip-synching, the sound is that of the film actors with no leakage difficulties and all panning and effects perfectly matched to the rest of the production.

The Miceli brothers feel there is much more involved here than putting together a good film. John Miceli sums it up this way: "Guests come over from around the world. They want to come in and see something, feel something, taste something completely new, and they want to take that home with them for a year until they can come back. So we want it to be completely 'over the edge.' It's not just a matter of levels, it's a matter of presenting extreme detail and delivering it well."

The show starts out with rapid-fire action and speeds up from there. This aggressive pace pumps up the adrenaline and inundates the viewer with intensive sensory input. As a result, not all the small details will be picked up by each person the first time. "I think this is one attraction that you need to see four or five times before you really get to see everything," John Miceli continues. "I don't know how many times I've seen this already, and I still find new things and get more out of it than I thought was there before."

The flip side of this is that when

there are so many things to pay attention to, it is possible for the viewer to get off track by examining some small detail. The mix needs to address this issue. "We try to first establish something and then play it down so it leads the viewer away and keeps the focus on the story," John Miceli says. "The most important thing is to be sure that everybody leaves with a clear understanding of the story."

By early spring, the show was ready for a soft opening. This means the audiences were let in to watch the show even though it was not yet advertised. On April 27, Universal Studios Florida officially opened the attraction, and by the first of June was running as many as 27 shows a day.

—FROM PAGE 60. SOUNDELUX

lems in filmmaking, but their latest product has a more universal appeal: a vacuum tube microphone called the U95.

Recently, Soundelux purchased Signet Sound, a music-recording studio that began life as Motown's Hitsville and later became known as Soundworks West. Now they are doing music sessions for artists ranging from Kenny Rankin to Kenny G.; however, the main motivation is the ability to do orchestral scores in-house or use the newly added Foley stage for film projects.

Another branch of the business, situated in Hollywood, is Soundelux Media Labs, the multimedia sound company responsible for the music in games such as "Pitfall!", "Shanghai: Great Moments" and "Howie's Great Adventure." The company has also done sound effects for "Spy Craft" by Activision and "Descent" by Interplay.

Did I mention sound effects? Soundelux is also the author and publisher of the popular Hollywood Edge sound effects library, which is used in more of everyone else's productions than anyone would like to publicly admit.

Speaking of publishing, Soundelux Audio Publishing is the division that records books on tape. The titles here range from the latest John Grisham novel, *The Chamber*, to classic Louis L'Amour westerns read by Willie Nelson.

Then there is, of course, special-venue audio, which is handled out of Orlando at the Soundelux Florida division, which was created only five years ago. So far they have garnered more than 50 Addy Awards, 15 Telly Awards and two International Monitor Awards.

Meanwhile, the Miceli brothers have more ideas in the hopper and certainly will draw on their experiences here to bring the next project to an even higher level. The field of special venue sound is far from mature. Tony Miceli sees it this way: "This show represents only the start of something completely different. But there is much more here than the future of special venues. I see this direction as the future of all theater entertainment." ■

After being a professor for 15 years at the University of Miami's Music Engineering Technology program, John Monforte is currently in between jobs. He would like to find a way to visit theme parks for a living.

Although they do a great deal of film and television work, their forte is special-venue audio. To date, they have created sound for more than 90 attractions, including theme parks and theme restaurants. Attractions include "Kongfrontation," "ET," "Earthquake," "Jaws," "Barney," "Fievel's Playground," and "Waterworld," at Universal Studios. Paramount Parks have used them for "Top Gun," "Nickolodeon," "Wayne's World," and "Days of Thunder"—just to name a few. Six Flags and Disney are also regular clients.

Soundelux Florida also excels in music composition and production, stretching from traditional large orchestral scores to the latest in pop and contemporary music. David Kneupper and Joseph Phillips, also principals in Soundelux, have credits including "Waterworld" for Universal Studios Hollywood, and "E.T.'s Adventure," "Kongfrontation" and "Jaws" for Universal Studios Florida (Kneupper); and "Barney and Friends," "Universal Studios Florida Dynamite Night Spectacular," "E.T.'s Adventure" and Nickelodeon's "Allegra's Window" (Phillips). Along with several other staff composers/producers, this team can handle just about any musical challenge.

Soundelux can put together either the sound system design or the audio production, but they specialize in integration. According to Tony Miceli, "We design the system and soundtrack together, with one goal in mind: the ultimate guest experience. This guarantees a superior audio experience and reduces changes so the client gets a great final product."

—John Monforte

—FROM PAGE 25, VINTAGE?

Capable of reproducing sound down to 1/10 Hz (later models can also, paradoxically enough, handle very short "ping"-like bursts in the 100kHz range), The Boot can develop 180 dB SPL at 100 meters—sufficient to, so to speak, blow the competition out of the water. It is surprisingly portable over approximately 1/3 of the world's surface area, as well as a few very large ponds.

The secret to its "oomph" is that it uses disposable, single-use charges known (depending on what city you are in) as "heroes," "hoagies" or sometimes "torpedos." After performing a particularly taxing musical passage, like say Tchaikovsky's *1812 Overture* or anything using a Roland drum machine, the unit must be "reloaded." At the same time buildings in the immediate area should be checked for structural damage.

The superstructural material is steel, with special sound-absorbing black paint, for deadly silent, rust-free operation in even the saltiest of environments. It is best-suited to residential studios with large, unused swimming pools, in neighborhoods zoned for military use. Of thousands built, very few remain, as they tended to self-destruct after a few months' use. Original cost DM1,000,000; street price \$2,000 plus \$200 per "hoagie." FOB Buenos Aires.

American Foods Gelaplex Reverberator (1954). American Foods (Amfoo) was not known for its professional audio products, and in fact this was its only foray into the field. The Gelaplex was an attempt by the marketing department of the company's Gelatin Dessert division to go head-to-head with Jell-O; without resorting to the risky (as they saw it) medium of television advertising. Although it was a colossal failure, the Gelaplex presaged the acoustical modeling that became a crucial design element in the digital reverbs of the future.

The device is stunning in its simplicity. 1/10-scale aluminum molds of desirable acoustical spaces are provided with the system, and purchasers can then create gelatin models of these spaces, using Amfoo's "YummiGel" product. Sound is input into the YummiGel using transducers mounted in soft-drink straws (supplied with the original units). Other straws contain tiny microphones for picking up the reverberated sound. The vibrations of the transducers travel through the Yum-

miGel to its boundaries and to the pickups in a manner equivalent to sound in a reverberant space. Since YummiGel transmits sound at a speed of 1/10-Mach, sound propagating through the model resembles a free-air reverberant field to a surprisingly realistic degree. Since any number of input or output straws can be inserted into the YummiGel, the user can simulate any number of feeds and pickups within the field, just like the multi-input, multitap digital devices of today.

Unfortunately, since stereo had yet to come into common usage (to say nothing of surround), the capabilities of the Gelaplex were not appreciated in its time. Further, Amfoo took a somewhat provincial approach in its choice of acoustical models to include with the system: the combination auditorium/gymnasium/cafeteria of the West Peedsville District Vocational and Technical High School, West Peedsville, Iowa; Bob's Lucky Strike Bowling Lanes and Billiards Emporium, Peeds River, Iowa; and Grain Elevator 17 at Amfoo's corporate headquarters in East Peed, Iowa. Requests from customers for more widely recognizable spaces such as the Mormon Tabernacle, the Taj Mahal and Yankee Stadium fell on deaf ears.

Gelaplexes, like many Amfoo products, sold like hotcakes, which is to say, in Aisle 6 of Amfoo stores. Few housewives, however, appreciated the incredible auditory qualities of these remarkable molds, and the company received many letters from irate purchasers along the order of "My pineapple-cherry mold won't set in this thing!" Of some 4,000 sold, approximately 20 remain, mostly in private collectors' hands (alas, no Bob's Lucky Strike Bowling Lanes survive), but they occasionally find their way into the vintage equipment market.

YummiGel itself was discontinued in 1956, and thus the supply is limited to aging desserts found in some Iowa refrigerators, all the way in the back behind the peach preserves, but many East Coast users report that rendered chicken fat makes an acceptable substitute.

Original price, \$5.95; street price, \$14,000, chicken fat extra. ■

Paul D. Lehrman usually finds truth much funnier than fiction, but occasionally makes exceptions. He profusely thanks Dave Moulton for his contribution of items from his priceless collection of fabulous equipment.

Coming in Mix
December 1996

Annual Mastering Issue!

- **FEATURES**
 - High-Bit-Rate Mastering
 - Mid-Level Mastering Houses
 - New Equalizers
- **EQUIPMENT FIELD TEST**
 - Soundtracs Virtua
 - Empirical Labs Distressor
- **PRODUCER'S DESK**
 - Todd Barkan
- **LIVE SOUND**
 - On Tour with Wynonna
 - Off-Season Maintenance in Sound Reinforcement
- **PLUS!**
 - Recording Strings
 - Sound for *The English Patient*
 - Regional Focus: Latin America

ATTENTION ADVERTISERS:

Deadline for ad placement is the seventh of the month, two months prior to publication. Call (510) 653-3307 for a 1997 Mix Editorial Calendar, space reservations and complete advertising information.

MIX®

—FROM PAGE 18, ABC

been going through life believing that humans had not yet developed a working artificial sun, only to see the blinding light of truth when I first walked out onto the field. Not only is it a beautiful, color-corrected uniform daylight out there at nine at night, but it is a good Arizona noon's worth. I have never seen this much artificial light in my life. The first thing I thought of was that if I got this setup for my pool, I could tan 24 hours a day and die even sooner. Then I realized that no space traveler could ever actually get lost as long as Earth holds these night games. Lots of light.

Oh, yeah. Lots of sound, too. In fact, that is why I was there (more or less)—to see how all this sound was handled.

A PRIZE IN EVERY BOX

The metal boxes I mentioned earlier were divided into two categories: video trucks and video trucks with audio in one end. The video trucks were impressive and contained everything from special super slo-mo rooms to yards and yards of guys sitting at little video recording stations. I have basically no

idea what all this stuff was actually for. Video is not my area of expertise.

In the main truck (where the producer lives) is the audio mixer, shoe-horned into a very cramped control room in one end. This guy lives and works in...

TRUE AUDIO HELL, AND HOW TO BUILD IT

Take the cockpit from the space shuttle and shrink it 50%. Add more gear. Set it up as a singular spherical control surface intended for one person in the center. Put that one guy in that center, but add two or three guests. Give the center guy lots of stereo monitor systems, some in front, some off to the

I underwent two totally new experiences:

I saw the first football game of my life, and I looked

straight into the face of true audio hell.

side, some above, some below. Oh, yeah—make sure that each of these systems is playing different stuff at the same time. Add a full surround system. Add more communication monitors than you can keep track of, and make sure that each one has a different guy yelling instructions at this center guy at the same time. Add some more communication monitors so that more different guys can ask the center guy questions that he needs to answer immediately.

Now set all this up so that the producer can watch him cook and dance through the glass.

WIRE IT AND THEY WILL COME

Then you glue mics on a bunch of guys out on the field and shoot a bunch more with parabolics. Bring in crowd mic feeds, but try to keep out the house P.A. Bring in commercial feeds, your network return, load up carts with effects and spots...and you are ready to mix some very spooky live stereo surround programming for the entire country to hear. You are in True Audio Hell.

EVEN IF IT RAINS

And, just to keep it from getting boring—bring in a monster thunderstorm with unbelievable amounts of water just as the lady begins the Anthem, and you are set (this, by the way, was how I got underwater). This generates the most irritating snapping sound as the raindrops hammer the plastic parabolic dishes.

The guy who I found in this hell was a Mr. Don Scholtes. I thought we had it rough mixing live music until I watched him. In my world of music producing and engineering—and even playing—if too many people have too much to say too loud, you can always leave for a few minutes to collect your thoughts and, medically speaking, cool your jets, or give them time to cool theirs. But not here. This is one nonstop session, constantly changing, no second takes, no breaks. It occurred to me that it would be a very bad idea to have several cups of coffee before this session. It then occurred to me that it would indeed be a very bad idea to get yourself into a situation where you were doing this session in the first place.

Scholtes actually had *much* less trick technology in there than we are used to for a simple music session, but he did much more with it. He sat there in his chair, sort of anticipating what was about to happen and laying his fingers on the proper faders in case it did. Constantly sneaking them up a shade and then back down if it looked like it might be too soon, he reminded me of a baseball runner stealing a base.

He would also push a switch here or there, and (my personal favorite) grab a pair of scissors and use it to push another button just out of reach overhead.

I liked this bit of technology. One little pair of scissors and the reach radius of a person is significantly expanded, so much more gear could then be (and therefore was) mounted overhead and around him in truly NASA-like style. And to think, we used to cut off the frayed ends of 2-inch tape with those things.

Anyway, the next time you find the pressure of your job building and your stomach knotting, imagine yourself in the situation I have just described.

I have always been interested in—no, fascinated with—live show mixing, and have *never* had any desire to try it. Now I have found something even more intense to admire and never try. We simply have it made. ■

SSC is now a wiser, more rounded individual—he has seen a football game.

JANUARY 1997

Live Sound Issue!

- ▲ Touring Consoles
- ▲ Monitor Mixing
- ▲ Optimizing Drum Sounds
- ▲ Winter NAMM Show Issue!

Ad Close:

November 7, 1996

Materials Due:

November 14, 1996

USE READER SERVICE CARD FOR MORE INFO

—FROM PAGE 127, BITS & PIECES

Avex UK is equipped with a 48-input SSL 4000 G Plus console that will be used mainly for mixing and dubbing...

THE CONTINENT

Tannoy appointed new distributors for its professional division. Sound Productions (Dublin) represents the company in the Irish Republic, and Philippos Nakas (Athens) is the new Greek distributor... Soundtrack Studios (Gran Via, Spain) provided post-production services for the Spanish-language versions of *Nixon*, *Pulp Fiction* and *Tombstone*, as well as a number of British TV series. This facility is equipped with two AMS Neve Logic 3/AudioFile suites, a Logic 2 console, and seven stand-alone AudioFiles... Studio design firm Munro Associates (London) completed work on a mobile broadcast facility for Swiss-Italian broadcaster TSI. The truck includes a control room and recording room with audio and video monitoring. Equipment is being provided by Switzerland's J&C Intersonic. Munro Assoc. also designed Dave Rodgers Music (Mantova, Italy), a joint venture between Italian producer Giancarlo Pasquini and Alberto Contini... The Hamburg High School for Music and Theatre took delivery of a 24-track TimeLine Studioframe equipped with two MediaMatrix DSP boards. The system was supplied by Skazzi!, TimeLine's North German distributor... Studio L'Equipe (Brussels) acquired a DAR Sabre Plus system, as did Dutch facility Studio Michel Mulders...

ASIA

London's InFlight Productions (May 1996 *Mix*) opened a facility in Singapore this summer. The new studios, equipped with SADIe disk editors, will serve the company's Far Eastern clients, such as Singapore Airlines and Cathay Pacific... JBL Professional has created a custom loudspeaker system for Hard Rock Cafes in Shanghai and Guangzhou, China. The system consists of modified Control 1 speakers, which are already in use in Hard Rock Cafes in Hong Kong, Beijing, Bali, Bangkok, Singapore, and many other Asian cities... Production company Omnibus (Tokyo) ordered two additional AMS Neve AudioFile hard disk recorder/editors for its facility in Minato-ku. Work done at Omnibus includes film dubbing and production of TV commercials and dramas... Avon Studio (Hong Kong) in-

stalled an SSL 9000 J Series console. A new facility in Shanghai, The Shanghai Radio, Film and TV Broadcast Bureau, also ordered a 9000 J Series...

CANADA

Turtle Recording Studios (Richmond, BC) reports that engineer/producer Larry Anschell has been working on new releases for Nickelback, Jar and Diesel Candy. The facility also recently

hosted demo sessions with the Spirit Merchants, Tumbleweed, Nadine States and Brave New World... Live Wire mobile recording (Toronto) recorded recent performances by Coolio, Tom Cochrane and Amanda Marshall. During the Toronto Jazz Festival, the facility also taped a show by Renee Rosnes that will be the first in a six-part series featuring Canadian jazz pianists for Brilliant Corner Productions. ■

RE-PRO INTERNATIONAL REPORTS PROGRESS

In most countries, recording artists and even session players are paid performance royalties when their music plays on the radio. (This is in stark contrast to the current system in the United States, where only songwriters and publishers receive money for airplay.) In Europe, the producer and engineer are practically the only people present in the recording studio who do not receive broadcast royalties. This system may soon change.

Some progress in the initiative to have record producers share in performance royalties for airplay in the United Kingdom and Europe is being claimed by the London-based Re-Pro International (the Guild of Recording Producers, Directors and Engineers). According to vice chairman, Peter Filleul, Re-Pro's strategy is "essentially a two-pronged approach": (1) having the contemporary record producer's role recognized as a performance, and (2) creating a new organization, the European Sound Directors Association (ESDA), to lobby for this change. "You've got to recognize the recording process is entirely different nowadays," he says. "We have multi-track recording, sequencers, samplers, and we have the ability to make multiple contributions to a single recording. These things have altered the expectation [of producers] to the point at which artistic direction takes place."

At the 100th AES convention in Copenhagen last May, the inaugural meeting of ESDA sought to coordinate efforts among its 11 member nations in their submissions to the European Commission and the World Intellectual Property Organization. At this November's show in Los Angeles, the guild will continue

its quest to get American producers and engineers involved. Re-Pro and ESDA will host a meeting and a Producer's Event, where they hope to attract successful U.S. producers and their managers.

It is clear that a major shift would need to occur in the U.S. to give performers and producers a slice of the airplay royalty pie. Airplay in the U.S. has long been viewed as advertisement for the sale of albums. Still, to our European counterparts, the fact that airplay often continues long after albums are out of print is reason enough to argue that performers are not being well looked after.

Newly passed legislation in the UK, which Re-Pro lobbied for, seeks to make the performance royalty payment process more accurate and modern. Re-Pro also supports the use of digital markers to electronically monitor airplay, a use of technology it sees as inevitable. "Where we [producers] will play a pivotal role is in the gathering of information," says Filleul. "The only people who will be absolutely sure about exactly whose performances were included on the master are the record producers. It will be an extraordinary responsibility, because we will probably have to authorize the fact that those performances actually took place."

This inaudible data may soon be embedded in every commercially released recording, and could do for airplay monitoring what the bar code did for retail tracking. This, as well as video, cable, Internet and future new delivery media, give urgency to Re-Pro's quest to define the producer's participation in performance royalties—both financially and structurally.

—Stephen Webber

MARKETPLACE

ANCHOR YOUR SPEAKERS WITH Sound Anchor Stands

Your system will perform to its potential when you get your monitors off of the meter bridge, properly positioned and supported.

• STABLE • RIGID • DAMPED •

SOUND ANCHORS INC.
(407) 724-1237

ADJUSTABLE MONITOR STAND



ATTRACTIVE & EFFECTIVE VOLUME CONTROL!
for **STAGE & STUDIO USE**

Now more transparent and portable with a re-designed, gapless full length hinge!

Heavy duty cases, acoustic foam attachments, & several size selections are also available

NEW LOWER PRICES!
CALL NOW FOR OUR FREE BROCHURE!



CLEAR-SONIC PANELS
by ACCUSONICS MFG.
800-888-6360

EARTH DISC

CD & Cassette prices that are DOWN TO EARTH

500 CD's \$1070 / 1000 CD's \$1595
500 CASSETTES \$555 / 1000 CASSETTES \$745

Mastering at \$55/hr

CD packages include:
Glass Master • Full color 4 Panel Booklet
2 Color CD • Shrink Wrap • Jewel Box • And much more...

TOLL FREE 1-800-876-5950

VISA and AmEX accepted



ADAT? TASCAM? We HAVE Your Tape! ...and Your Cable!

1-800-999 HAVE 4 2 8 3

Call for our **NEW CATALOG**

HAVE INC.
HAVE, Inc. Dept. MX2
Hudson, NY 12534



DIGITAL DOMAIN™ **CD & CD ROM Manufacturing**
in Orlando, FL (800) 344-4361
(407) 831-0233

MASTERING... with a CAPITAL M

Unsurpassed mastering quality by Bob Katz. Custom hardware and software, 128x Oversampling 20-Bit A to D, Unique Digital Processors, Sonic Solutions Editing, Tube and Solid State Analog Recorders.

CD Mastering is an art. Levels, fades, equalization, spacing... everything is important to you and to us.

CD-ROM Pre-mastering, Replication - CD-R Data Storage & Archiving
Transfer Macintosh or IBM disks (hard drives or removables) to CD-R

CD REPLICATION...
1000 CDs at \$1.55 w/jewel, shrink, insertion. 2500 at \$1.50 and free Glass Master.

CD Booklet Printing and Graphic Design ...
1000 4-Panel Booklets \$0.37/ea. Full-Color Outside & Tray, B&W Inside.

Internet CD mastering website - <http://www.digido.com>

CD Express Complete High-Quality Compact Disc Recording and Production Services

- Data Formatting • One-Offs • Pre-Mastering •
- Mastering • CD Audio • Production Management •
- Mixed Mode • Hybrid • Multimedia CD-ROM •

Optical Media • CD Express Services Group
51 East Campbell Avenue, Suite 170
Campbell, CA 95008
(408) 376-3511 • (800) 347-2664



Cutting Edge Audio Group

<http://www.ceag.com>

Sales • Consulting • Training
(415) 487-2323

CD and Cassette Prices That Are Out Of This World!

CD Packages include:
PMCD & Glass Master
2 Color On CD Printing
Full Color 2Page Booklet
And Much More...



COMPACT disc DIGITAL AUDIO

		CD's	Cassettes
Call Toll Free	500	\$1075	\$506
1-800-928-3310	1,000	\$1637	\$752

American Clients: No Tax * No Duty * No Problem!

LOOK NO FURTHER
(Well, just a little further)
Fully Packaged CD's - \$1.20

CD-Audio • CD ROM & CD Enhanced
Real Time & High Speed Cassette Duplication
Digital Editing • Graphic Design • Printing

Save with our **Retail Ready Packages**
Label? Studio? We offer PRO VOLUME DISCOUNTS

AMtech
1-800-777-1927
e-mail: 74043.1473@compuserve.com



World's Finest Cue System



Used in Vermont's former White Crow Studios, this custom-built cue system is perhaps the finest ever built. Five roll-around mixing stations give musicians total control of their headphone mix, including independent local reverb and talkback facilities. The mixing stations daisy-chain together with flexible Mogami snake and 156-pin DL connectors (provided). Twenty audio busses from the system connect to 20 points in your patch bay. The audio busses can be fed with any +4 signal. This system cost us in excess of \$24,000 to build and can be purchased for \$14,900. A limited 90-day warranty covers all hardware. All units are in like-new condition. The ultimate addition to a serious studio. We ship anywhere.

Contact Todd Lockwood, 802-658-1270, Ext 201.
White Crow Audio, 19 Marble Avenue, Burlington, VT 05401

ATTENTION: STUDIOS AND BROADCASTERS

C-10 Maxell XLII 29¢ <small>100 minimum</small>	C-20 Maxell XLII 35¢ <small>100 minimum</small>	C-30 Maxell XLII 40¢ <small>100 minimum</small>
--	--	--

250 BASF Chrome Cassettes Duplicated
\$180 INCLUDES 30 MINUTE 1/2" MASTER

SOUND ADVICE
1-800-987-6830
(CA 909/987-6930)

Better Quality, Lower Prices, Faster Turnaround

MEDIA GROUP
MEDIAGROUP PARTNERS, INC.

Technicolor Approved Manufacturing Representative

DEVELOPMENT, PRODUCTION, & MANUFACTURING FOR THE INDUSTRY PROFESSIONAL.

800-622-0737

CD PACKAGE

FROM YOUR CD-READY MASTER

INCLUDES:

- ORIGINATION
- 4-PAGE BOOKLET WITH 4-COLOR COVER
- 1-COLOR BACK
- 4-COLOR INLAYCARD
- CD LABEL FILM & 2-COLOR LABEL IMPRINT
- JEWEL BOX & SHRINK WRAP

DOES NOT INCLUDE:
TYPESETTING OR COMPOSITE FILM

Ask for our free brochure!!! *Free 27th Hour*

1000 \$1799

pick on the road

Rainbo Records and Cassettes
1738 Berkeley Street, Sanza Monica, CA 90404 • (310) 829-3476 • Fax (310) 828-8765

GET IT FAST

Don't trust your audiophile duplication needs to anyone else!

Progressive Music

Internet: prgmus@aol.com Avail: VISA & Master Card

2116 Southview Ave.
Tampa, FL 33606
(813) 251-8093
FAX: (813) 251-6050
Toll Free: (800) 421-TAPE

ALL COMPLETE:
4-color Pkgs. Printed Inserts. Chrm Tape. from your DAT or CD-R & Film

500 CD'S	\$1070.00
500 CASS	\$610.00
1000 CD'S	\$1499.00
1000 CASS	\$905.00
500 CD'S + 500 CASS	\$1680.00
1000 CD'S + 500 CASS	\$2109.00

"Fastest Turn-Around in the Known Universe!"

Pro Audio CD Recorders

Red Rooster Pro Audio "Windows" CD-R mastering / editing software

- Recorders
Yamaha • Philips • Sony
- CD-R Duplicators
Up to 64 CDs/hr.
- CD Replication
1,000 - 1,000,000
FREE Mastering - Call for Details

CD-R Media:
TDK • Mitsui

Noble House • 800-260-5053
Overseas 818-709-5053 Fax 818-709-3503
e-mail: rknoble@ix.netcom.com

SOUND TECHNOLOGY
Instrumentation and Automation

Transform Your PC Into A Powerful Spectral Analysis System

Call To Order 1-800-401-3472
Fax: 408-378-6847
info@soundtechnology.com
http://www.soundtechnology.com
Free Software Demo

SPECTRA SERIES

The Best In Test offers a totally new dimension in Audio Testing.

empire records

1000 Complete CD's \$2375

Includes: CDR, 70 min. CD, 2 colors on disc, layout, film, full color four page booklet & tray card, jewelbox, assembly and shrinkwrap.

Call toll free for a free full color brochure & sample

1-800-305-DISC

2635 Delaware Avenue • Buffalo, NY • 14216
Phone: (716) 871-3475 • Fax: (716) 871-9317

MasterCard VISA

PREMIUM CUSTOM LOADED BULK AUDIO CASSETTES

HIGH BIAS (TYPE II) CASSETTES FOR MASTERING AND/OR ORIGINAL RECORDING
TDK PRO SA BULK

UNLABELLED AND UNBOXED • MAGNETIC MEDIA CLEAR 1-SCREW SHELLS

Quantity	C-10	C-20	C-30	C-45	C-60	C-90	C-100
25-99	\$0.31	\$0.37	\$0.44	\$0.50	\$0.61	\$0.82	\$0.90
100-999	\$0.28	\$0.34	\$0.40	\$0.46	\$0.55	\$0.77	\$0.90
1000 +	\$0.25	\$0.30	\$0.35	\$0.44	\$0.52	\$0.76	\$0.87

MAXELL XLII BULK

UNLABELLED AND UNBOXED • MAGNETIC MEDIA CLEAR 1-SCREW SHELLS

Quantity	C-10	C-20	C-30	C-45	C-60	C-90	C-100
25-99	\$0.32	\$0.37	\$0.42	\$0.54	\$0.61	\$0.83	\$0.90
100-999	\$0.30	\$0.34	\$0.40	\$0.49	\$0.58	\$0.79	\$0.90
1000 +	\$0.27	\$0.32	\$0.38	\$0.47	\$0.52	\$0.76	\$0.87

PREMIUM ROUNDED-EDGE ALL CLEAR NORESCO BOXES > \$0.13 each
12-up labels 30¢ per sheet, 6-up Insert cards (I-cards) 30¢ per sheet.
All other lengths loaded and priced at next highest length. Loaded precisely to your specifications.

NOW! RECORDING SYSTEMS, INC.
32 WEST 39TH STREET, 9TH FLOOR, NEW YORK, NY 10018
Telephone: 212-768-7800 • 800-859-3579 • Fax 212-768-9740
We Accept VISA • MasterCard • American Express or LPS CDD Cash Only
Prices subject to change without prior notice.

CALL FOR FREE FULL LINE A/V CATALOG

We will match any advertised price!

\$50 MINIMUM PRODUCT ORDER
(Charges extra; Brands and lengths may be mixed to reach quantity price.)

1000 CD's : \$1199

• Jewel box • CD Imprint • Shrink wrap

- Cassette / CD packages
- Sonic Solutions™ Mastering
- Graphic Design & Printing
- Sm & Lg Volume Runs

10 DAY turnaround

• MC / Visa / AMEX

prophet DISC

1-888-DISC-MFG

ATB® for measurements
CATT® for room acoustics
AkAbak® for electroacoustics
CAE software for acoustics

Bang-Campbell Associates
 3 Water St., Box 47, Woods Hole, MA 02543
 [v] 508.540.1309 [f] 508.540.8347
<http://www.ultranet.com/~rhcamp>



LOW Prices!
FREE Brochure!
MAJOR Label Quality!
FRIENDLY Customer Service!

Compact Disc & Audio Cassette Manufacturing
(802)453-3334 FAX (802)453-3343
 email - PROTOSOUND@aol.com

**MANUFACTURERS OF
 CDs and CASSETTES**

CD REPLICATION -
 CASSETTE DUPLICATION -
 DIGITAL MASTERING -
 GRAPHIC DESIGN -
 PRINTING - PACKAGES -
 ONE OFF CDs -
 DEAL DIRECT AND SAVE!

Ask about our
FREE WEB PAGE
 offer

800-289-9155
 OUTSIDE U.S. 516-244-0800
[HTTP://WWW.PB.NET/~CCMUSIC](http://www.pb.net/~ccmusic)



Professional Service
FREE CATALOG
*You'll Hear and Feel
 the Difference*

Number ONE for NEVE

NEVE 8036 CONFIGURED 24/8/16 R/PATCHBAY
 FITTED 24 x 1064's, GROUP MODULES 1943/1's, 4 REV
 RTNS, 2 x 2254A COMP/LIMITERS 16 MTR BRIDGE

NEVE 8036 CONFIGURED 21/8/12 R/PATCHBAY
 FITTED 20 x 1064's, GROUP MODULES 1900's, 4 REV
 RTNS, 2x 2254 & 1 x 2254A COMP/LIMITERS 8 MTR BRIDGE

NEVE 8036 CONFIGURED 24/8/16 R/PATCHBAY
 FITTED 24 x 1081's, GROUP MODULES 1943/1's, 4 x 2254E
 COMP/LIMITERS, 16 MTR BRIDGE

PLEASE NOTE IN STOCK 8 / 10 / 12 SIZE FRAME
 BUCKETS TO EXTEND ABOVE FRAMES, WITH
 ALL GROUP MODULES 1943/1's or 1900's.

NEVE 5315 CONFIGURED 36/8/2 REMOTE PATCHBAY
 CONSOLE FITTED 36 x 3314's, 36 x 33752's GROUP
 MODULES LINE AMPS 33415 / 33416.

NEVE 5335 CONFIGURED 36/4/2 PATCHBAY FITTED 36
 x 3314's, GROUP MODULES 33723, LINE AMPS 33415 / 33416.

NEVE 5305 CONFIGURED 32/8/16 REMOTE
 PATCHBAY CONSOLE FITTED 32 x 3314's, 48 x 33439
 GROUP MODULES, LINE AMPS 33415/33416

NEVE MELBOURNE 12/4/2 FITTED 6 x 3314's,
 6 x 3315's, GROUP MODULES 12 x 33723's.

NEVE MELBOURNE 12/4/2 FITTED 12 x 3314's,
 GROUP MODULES 12 x 33723's.

NEVE BCM10 10 x 1073's, GROUP MODULE
 1895, LINE AMPS 1272's.

NEVE 12/8 SUBFRAME FITTED 12 x 33752's,
 LINE AMPS 33415's & PATCHBAY.

NEVE 8/2 (THE SUITCASE CONSOLE)
 2 IN STOCK FITTED 8 x 3412's.

**PYE COMPRESSORS
 & NOISEGATES...(4060's)
 IN STOCK!!**

TEL: 01932 872672 FAX: 01932 874364
TEL: INTERNATIONAL 44 1932 872672
FAX: INTERNATIONAL 44 1932 874364

NEVE MODULES IN STOCK
 1064 / 1081 / 3314 / 1073's
 COMPRESSOR/LIMITERS 2254
 2254A / 2254E / 33264A / 2262's

ALL STOCK OWNED BY A.E.S. PRO AUDIO
WANTED YOUR NEVE / SSL
 CONSOLE...WE WILL PURCHASE &
 COLLECT ANYWHERE WORLDWIDE



The NEVE Specialist
 A UNITED KINGDOM BASED COMPANY

Series 34 \$11,000!



The Studio Doctor

Sombody Call a Doctor?
 Parts and Service
 Factory Authorized
 Sound Workshop Specialist




Rich GIARRATANO (813)392-2220


**NEW PATENTED
 ANTI-JAM SELF-CLEANING
 ENDLESS LOOP**

CHEATING YOURSELF?

Most likely you are - If you're not producing
"ON HOLD" telephone tapes. **BIG PROFITS**
 being made, just ask AT&T for their monthly
 prices. Call or fax for **HOLD-A-CALL** info. &
 a sample of our new **"ANTI-JAM/SELF-
 CLEANING" ENDLESS LOOP.**

Also ask about our Dealer Lead Program.

MANN ENDLESS CASSETTE INDUSTRIES
 3700 Sacramento, San Francisco, CA 94118
TEL: (415) 221-2000
FAX: (800) 683-7569 or (415) 387-2425



**Design, Print and
 Apply CD Labels
 for \$79⁹⁵**

*That's
 NEATO!*



**ORDER NOW!
 FREE
 100 LABELS**

**NEATO
 CD LABELER KIT**

- 1 Create your own artwork *On Your Computer* with easy-to-use NEATO Templates.
- 2 Print on *Any Laser Printer* using NEATO pressure sensitive die-cut labels.
- 3 Using the NEATO Label Device, apply labels... **PERFECTLY EVERY TIME!**

KIT INCLUDES

- Label Design Templates (PC & Mac)
- The Amazing Neato Labeler
- Complete Instruction Guide

800-984-9800
 NEATO • 250 Dodge Ave. • East Haven, CT 06512
 203-466-5170 • Fax 203-466-5178
 In Europe: +44 (0)990 561571
 See us at: <http://www.neato.com>



The ADAT Exchange

A Service of Hi-Tech Audio.

Upgrade to the outstanding new Alesis Adat XT with our generous trade-in program. We also offer used Adats with a 30 day warranty, in addition to a complete line of professional audio equipment for purchase or rent.

☎ (415) 742-9166

Reducing audio stress since 1983.

HI-TECH
AUDIO

500 Tapes/500 CDs only \$2,130

Includes Design - Printing - Duplication - Packaging

◆ complete retail-ready packages ◆



Call Today For Our Free Samplerlogue[®]!

1.800.458.6405

CDs & Cassettes in quantities from 100 - 100,000

Klarity Packages Include:

✓ Free Macintosh[®] Design

✓ Top Quality Duplication

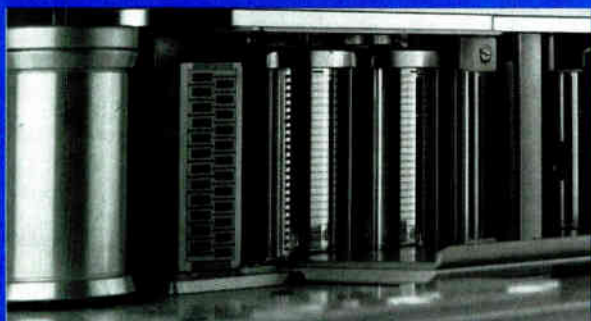
✓ Finest Materials

✓ Fast Turnaround

✓ Satisfaction Guarantee



GENUINE STUDER.



Why settle for a copy when you can afford the original?

STUDER REPLACEMENT HEADS have always been the best option for your Studer tape machine. They offer better frequency response and twice the life of third-party parts; they're rigorously tested; and there's the confidence of knowing there are real Studer parts in your headblock.

In the past, Studer quality cost you extra. But now we can offer genuine Studer heads at virtually the same prices as the imitations. Call our Nashville office at 615/391-3399 for full details. And get your hands on Genuine...

STUDER
PROFESSIONAL AUDIO EQUIPMENT

A Harman International Company

615/391-3399

Worldwide Distribution: Studer, Regensdorf, Switzerland +41 (0) 1 870 75 11

PROBLEM SOLVED.



The Pro's agree! Eco Charge rechargeable power sources make even the most demanding recording situations a breeze. The ECS line of rechargeable battery systems is extremely reliable, easy to use, and maintenance-free. Systems are available for *all* portable



DAT recorders, analog recorders, and portable mixers. Battery/case systems are available in a variety of voltages and sizes and can be custom designed for specific requirements. Make power problems a thing of the past! Call Eco Charge today.

P.O. Box 956 • Boulder, CO 80306 • TEL 303.449.5761 • FAX 303.449.1545
ORDERS 800.361.5666



UNCLE ALBERT'S VACUUM TUBE DIRECT

- High Quality, Hand Built Vacuum Tube Direct Box
- XLR Balanced Output, with Ground Lift
- 1/4" Tube Buffered Output
- Durable Aluminum Case with Solid Walnut End Caps
- Lifetime Warranty

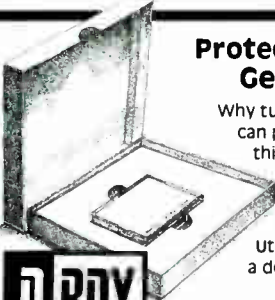
UNCLE ALBERT'S AMPLIFIER, INC.

8103 E. 47TH STREET, BUILDING B • INDIANAPOLIS, IN 46226
(800) 416-2444 (317) 546-7674 (317) 546-0035 FAX

Mix MARKETPLACE

When You're Ready to Stand Out From the Competition, Marketplace Is Ready for You!

(800) 544-5530



**Protect your investment!
Get the D Box!**

Why turn in just a little DAT tape when you can present a complete package. Something that will safely store your sound report with your tape. You can easily custom logo your boxes.

Also Available
Utilizing the same box you can choose a double DAT insert (for 2 tapes) or our HI/8 insert for digital 8 track users. Call now for quantity and wholesale prices.

Available only at
Coufal - Isley Sound
665 N. Lillian Way, Hollywood, CA 90004 • 213-871-9288, FAX 213-465-6681

INDESTRUCTIBLE

THE #1 SELLING ATA RACKMOUNT CASES ON THE PLANET!

- Available in 2u, 4u, 6u, 8u, 10u, & 12u sizes
- All rackmount hardware included
- SKB's exclusive lifetime warranty to the original owner



SKB CASES
DEFY DESTRUCTION

Worldwide Sales & Marketing
Stuart, Florida
15611 288-7200 Fax 888-288-7119

Quad
SERIES
State-of-the-Art Studio Environment

IAC Acoustically Rated Components For All Your Studio Requirements



FROM Noise-Lock® Doors and Windows; Tranquil-Aire® Ventilation Systems; Walls, Ceilings; Vibration Isolated Floors; Sound-Absorber and Diffuser Elements...

TO Complete TV/Radio, Recording & Music Studio Systems *custom-designed to your needs.*

INDUSTRIAL ACOUSTICS COMPANY
1160 Commerce Avenue, Bronx, New York 10462
Tel: 718•931•8000 • Fax: 718•863•1138




Grace Design


HIGH FIDELITY.

microphone preamplifiers reveal all the subtlety and detail found in music.

MODEL 801 EIGHT CHANNEL



MODEL 201 TWO CHANNEL



GRACE
d e s i g n

Boulder, Colorado 303.443.7454 Fax 303.444.4634
<http://www.gracedesign.com/pre>

CRANE SONG LTD.

THE STC-8 DISCRETE CLASS A STEREO COMPRESSOR-PEAK LIMITER



AVAILABLE FROM:

American Pro Audio • Bestec • Ears Audio
Eclipse Audio • Funky Junk • KGB
Mercenary Audio • OBM • Pacific Pro Audio
Pro Audio Sales & Service • Sam Ash
Super Audio • Wind Over the Earth

2117 EAST FIFTH STREET • SUPERIOR WISCONSIN 54880 USA • TEL 715-398-3627 • FAX 715-398-3279

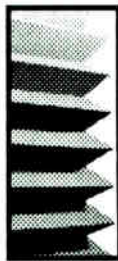
SEE US AT AES • DEALER INQUIRIES WELCOME

CLASSIFIEDS

MIX Classified Ads are the easiest and most economical means to reach a buyer for your product or service. The classified pages of Mix supply our readers with a valuable shopping marketplace. We suggest you buy wisely; mail-order consumers have rights, and sellers must comply with the Federal Trade Commission, as well as various state laws. Mix shall not be liable for the contents of advertisements. For complete information on prices and deadlines, call (800) 544-5530.

Acoustic Consulting

Acoustic Foam, Diffusers & More!



STUDIOFOAM™ SOUND ABSORBENT WEDGES

Good gear in a bad room sounds no better than bad gear. We can smooth out your room's response, improve your imaging, enlarge your sweet spot & control the reflections that're messing with your sound, no matter whether you work in your garage or a big commercial studio. Whatever your budget or sound problem, we can help. Plus, we've just introduced two proprietary diffusers that out-perform ones costing hundreds more & at prices you will simply not believe! Wall mount 'em or drop 'em into your suspended ceiling. Easy & cheap to ship, easy to paint, easy to mount, incredibly affordable & extremely effective (at any price). For once, diffusion is within the reach of EVERY budget. Call us & we'll fax you the test data on our new world-class T'Fusor™ & MiniFusor™.

While you're at it, ask for your own copy of our free new expanded sample & info kit! Other new goodies: Active & Passive Studio Monitors, Mic Windscreens, Headphone Ear Cushions, U-Boat™ Floor Floaters, LENRD™ Bass Traps, NS10M Tweeter Protectors, Rack Hardware, Etc.

Users: AT&T • NASA • Sony • NBC Sports • Shure • ABC Radio Network • NPR • Ford • ShowCo • Kodak • Warner Bros. • 20th Cent. Fox • Universal Studios • Maury Povich Show • Ensoniq • Community • Hitachi • Gen I Dynamics • Toshiba • Dennis DeYoung (Styx) • Baldwin • SkidRow • Editel • Paramount • Mike Wanicic (J. Mellencamp) • Rockwell • US Gov't • Opryland • Carvin • WhisperRoom • Pat Duke (Voice of McDonalds & Miller Brewing) • Martin Marietta • Manley Labs • Rainbow America (Disney, Microsoft) • D. Ervasti (Voice of NFL on Fox) • Plus People Who Do Work For ABC News & Sports, NBC News, ESPN, Late Show With D. Letterman, Cell. One, Texas Instr., Stevie Nicks, The Outfield, Kurzwel, Turner Broadcasting, WalMart, NFL on Fox, Coke, Taco Bell, Lewis, Mattel, Apple Records, Fox TV, TUP, etc.)

Auralox, formerly USAFoam • 11571 E. 126th, Fishers IN 46038
Free Tech Support & Advice 317-842-2600 • Fax 317-842-2760

1-800-95-WEDGE



SILENT FAX OR INFO (413) 584-7944
58 Nonotuck St., Northampton, MA 01060
ORDER (800) 484-1003 Code # 0032
silent@crocker.com • <http://www.crocker.com/~silent/>
Acousticon Fabric Panels • Sound Barrier Isolation Hangers • A.S.C. Tube Traps Silence Wallcovering • WhisperWedge Melaflex • S.D.G. Systems • Hush-Foam R.P.G. Diffusers • Sonex • NoiseMaster

STUDIO DESIGN
CONTROL ROOMS & STUDIOS
SYSTEMS • TURNKEY PROJECTS
ARCHITECTURAL ACOUSTICS
ROSATI ACOUSTICS
INNOVATIVE DESIGN & CONSULTING
18 YEARS • BOSTON, MA
617-423-5546 • 800-423-5505

FAK your Mix Classified
510 • 653-8171

Business Opportunities

Recording studio real estate for sale or lease—Jersey City, NJ. 2-story, 8,500-sq.-ft. multiroom facility, fully renovated, 3 control rooms, 2 recording rooms, 5 offices, multizone HVAC. 10-car lot, 10 min. NYC. house on property. (201) 656-7023.

WHY BE ONE OF 100?

Own the best studio in Costa Rica. 24-trk ADAT, Soundcraft 2400 console y mucho mas. Steady clientele; excellent cash flow, bilingual staff. \$75k. For info Tel/Fax 011-506-224-7304.

MIX Classified Department ► e-mail
boyccmr@cardinal.com

**WORLD CLASS
RECORDING STUDIO**
in San Francisco Bay Area
FOR SALE.
Serious buyers only.
(415) 388-4065
Please call for info.

LET THE GOVERNMENT FINANCE your new or existing small business. Grants/loans to \$800,000. Free recorded message: (707) 4480270 (NL3).

Employment Offered

Wanted: **AUDIO ENGINEERS** for Boston area studio; 2-3 years exp. Must be knowledgeable with all aspects of digital and analog equipment used in the music industry. Send resume & DAT to: **Steve Ferlazzo; 397 Marlborough St., Boston, Mass. 02115.**

Oakdale Post Audio, Las Vegas' premier broadcast audio facility, seeks a highly motivated **Recording Engineer** with excellent people skills to supplement its team. Requirements: Experience in radio/TV spot production and audio post-production. Pro Tools III with TDM knowledge or similar. Health insurance after 90 days. No state income tax in Nevada. Please send resume, audio and/or video reel and credit list to: **Oakdale Post Audio Inc., Attn: Bill Ebmeyer, 3329 Eastern Ave. South, Las Vegas, NV 89109.** No phone inquiries please. Serious applicants only, this is not an entry level position. All applications will be held in confidence.

MASTERING ENGINEER

World class music-mastering facility, located in Los Angeles, is looking for a Mastering Engineer.

Candidates must have the following qualifications: 10 years mastering experience at a major mastering facility; Sonic Solutions experience; lacquer-cutting experience; and an active client list and discography.

This is a lucrative opportunity for someone on the cutting edge.

Send resumes to:

Mix Classifieds,
PO Box 8845-CR
Emeryville, CA 94608

Recording Engineer

No experience required!

On-the-job-training in local major Recording Studios

Part-time, nights, weekends – Free video and brochure tell how

1-800/295-4433 Ask about our Record Label!

<http://www.sna.com/musicbiz>



Employment Offered

BE WHERE THE ACTION IS!

Synchrosound Studios, a music recording and audio post production facility in Kuala Lumpur, requires experienced Sound Engineers looking to advance their career by working in the Asian region.

Audio Post Engineer

with experience in one of the following

- AudioFile
- Logic Consoles
- ProTools

Music Engineer

with experience in one of the following consoles

- Capricorn
- VR Legend with FF
- SSL 9000J
- SSL 4000G+

Salary and conditions are negotiable.

Please fax your curriculum vitae and references to Adrian Yeo at (60) 3 758 7429

synchrosound
STUDIOS

A Member of the World Studio Group

Second Engineer

SF Bay Area Film-Video Post Facility seeks technician exper'd in analog & digital recording for audio post studios. Must be familiar w/ DAWs, console automation & synchronization systems. Send resumés to Mix Classifieds, P.O. Box 8845-MS Emeryville, CA 94608.

RECORDING ENGINEER ON THE JOB TRAINING AT A MAJOR STUDIO IN YOUR AREA

Keep your present job.

No experience required.

Train around your own schedule.



1-800-795-5750

For Mix Classified Rates & Placement call (800) 544-5530 fax (510) 653-8171

OPENING FOR AUDIO ENGINEER

*United States Air Force Band of the Rockies
Colorado Springs, CO*

Annual Salary approximately \$24,400* 30 days paid vacation yearly
*married living off base Full military benefits

• Maximum age at enlistment is 34

For audition requirements call before December 20, 1996

Director of Auditions
The U.S. Air Force Band of the Rockies
520 Otis Street
Peterson AFB, CO 80914-1620

For more audition details call:
(719) 333-2937
Fax: (719) 333-3806

Employment Wanted

ENGLISH AUDIO TECHNICIAN currently working in Europe seeks opportunity, pref. in CA. 20 years experience including film and video production/post, pro audio manufacturing, studio installations. All offers considered. CV available on request. Tel/Fax +(411) 431-5551.

Equipment Insurance

\$ 50,000 of Gear for \$500 a year!
\$ 100,000 of Gear for only \$750!
\$1,000 Deductible!

A+ Rated National Company!
Broad Coverage with Few Exclusions!
Worldwide Coverage!
Immediate Coverage with Credit Card!

(800) 800-5880



UNITED AGENCIES INC.

350 W. Colorado Blvd. Ste. 220
Pasadena, CA 91105

Equipment Financing & Insurance

EQUIPMENT FINANCING

- Fast Approval
- All Types of Equipment
- Easy to Qualify
- Long Term Leases-Fixed Rates

First United Funding
(800) 964-3525

Mix Marketplace Mix Classifieds

For Rates and Deadlines
Call Robin Boyce

(800) 544-5530

LFCI Equipment Leasing

DIRECT LENDERS

SPECIALIZING IN AUDIO - VIDEO EQUIPMENT

- ⇒ No Down Payment
- ⇒ Application Only For Up To \$50,000
- ⇒ New & Used Equipment

CALL: (800) 626 - L F C I

VISIT OUR WEB SITE: <http://www.lfci.net>
APPLICATIONS, QUALIFICATIONS, THE LEASE PROCESS

ALSO APPLY FOR OUR \$10,000 CREDIT CARD / LEASE

We Specialize in Audio/Video Equipment

EQUIPMENT FINANCING

Fast, Easy Qualification To Apply or Request
No Financial Statements Necessary Additional Information Call
True Lease or Finance Lease Option Jeff Wetter Today.

FLEX LEASE, Inc.
COMMERCIAL EQUIPMENT FINANCING

Loans By Phone: (800) 699-FLEX
Fax: (214) 578-0944

Equipment Financing

- ★ New or Used Equipment
- ★ True Lease or \$1.00 Buyout
- ★ No Financial Statements Required for Transactions Under \$50,000

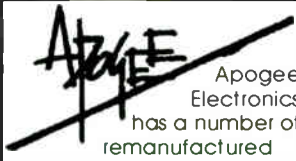
to apply or request information contact John McMindes

1-800-477 LEASE

AMERICOM
LEASING, INC.

Equipment for Sale

35mm MAGNETIC DUBBERS: Magna-Tech Reproducer Recorders w/Interlock: MD-235, MD-636, MR-436 for sale. Call Michael Temmer, (212) 206-1475. Fax: (212) 929-9082.



Apogee Electronics has a number of remanufactured **AD-500E** stereo 18-Bit Analog to Digital converters we have taken in on trade. We are offering these units at a special price of \$1,495 with a one year warranty.

APOGEE ELECTRONICS
Phone: (310) 915-1000
FAX: (310) 391-6262

SINGERS! REMOVE VOCALS
Unlimited Backgrounds™
From Standard Tapes, Records, & CDs with the Thompson Vocal Eliminator™
Call for Free Demo Tape
Phone (404) 482-4189 Ext 8
LT Sound, Dept. MX-1
7988 LT Parkway
Lithonia, GA 30058
24 Hour Demo/Info
Line (404) 482-2485 - Ext 8
Best Vocal Eliminator™, Key Changer, Voice Enhancer!

THE CASE SPECIALISTS
FREE CATALOGUE



(800) 346-4638
(516) 563-8326, NY
(516) 563-1390, Fax
Custom or stock sizes
Our prices can't be beat!
Discount Distributors

How BIG is Yours?

HARD DRIVES Digital Audio Specialists!
CD RECORDERS
MEMORY CHIPS
SOUND CARDS
MIDI SOFTWARE

BIG DISC
(954) 749-0555
<http://www.bigdisc.com>

United States Audio

Our Task Force Provides The Finest In Pro Audio Equipment!

- Major Brands
- New, Used & Vintage
- Huge Inventories
- Studio Liquidation
- Authorized Dealer
- We Buy Gear

We're Here To Serve You!
Tel. 818.887.6600 Fax 818.887.4700

Interface Questions?
We Can Help Make The Connection!
Specializing in Digital Audio System Design

- All Major Product Lines
- Mixing Consoles
- Recorders • DAW'S
- Amplifiers • Preamps
- Microphones
- Processing
- Sales
- Design
- Consultation
- Installation
- Service



Communication Task Group, Inc.
716-873-4205 **800-367-2844** 702-736-7542
Major Credit Cards Accepted

Down Town Sound
Looking for the newest equipment for your recording studio? We carry Soundcraft, Panasonic, JBL Pro, Ramsa, TC Electronic, Shure, Audio-Technica, Hafler, dbx, Lexicon, Rane, KKR, and many more popular brands. Call or fax us for price quotes and information.

Down Town Sound
290 West Water Street
Toms River, NJ 08753
(800) 836-5555 Fax (908) 341-0770

Sound thinking

The Best Prices, The Best Service
you'll ever find on...

digidesign
ALESIS

541-386-2682

Replacement Faders
Long-Lasting Conductive Plastic faders for all consoles.
Low prices, mono or stereo
Replaces: Alps, P&G & others.
60, 100 & 104mm, & rotary
888-2-Faders (888-232-3377)

ADAT UPGRADES—MIC MODS
Component-level upgrades for mixing consoles, tape machines, mics and all outboard gear. Also, high-speed, high-quality mic preamps.

AUDIO UPGRADES
6410 Matilija Ave.
Van Nuys, CA 91401
(818) 780-1222
Fax (818) 346-2308

Blue
BALTIC LATVIAN UNIVERSAL ELECTRONICS



ORIGINAL STYLE VINTAGE SHOCKMOUNTS

Neumann, U47, U87, U67, 563, UM57, SM2, SM69, 582
AKG C12, C24

Yokemounts for Neumann M49/M50 \$350.00 ea. plus shipping & COD

SASE for BLUE Flyer on: Vintage microphones, parts and accessories. Beautiful custom mahogany boxes available.
818.986.BLUE (2583)
FAX 818.784.7564

NEVE 8108 PARTS FOR SALE. Also, complete NECAM '96 system, NECAM 1 system. 8108 modules and many assorted parts. Call for prices and specifics. MAD DOG STUDIOS. (818) 557-0100.

SSL Console 4000E with G automation. Installed 1986, upgraded late 1989, 48 input/output modules, 8 stereo input modules, 64 inputs, producer's desk, TT patchbay on right side, Black EQ, VU meters. Great history with many hits, perfectly maintained. Call Jeff Greenberg or Jay Antista (310) 478-8227.

Professional Console Housings for MACKIE 8-BUS MIXERS



ARGOSY 800-427-5698
Outside U.S. 573-346-8549, Fax 573-348-2769
ACI • Rt 3, Box 4374-A • Osage Beach, MO 65065

OMNIRAX
STUDIO FURNITURE for the discriminating musician



800-332-3393
P.O. BOX 1792 SAUSAUTO, CA 94960

Anyone who has heard it knows...



NEW! VT-2 Dual Channel Vacuum Tube Microphone Preamplifier

D.W. FEARN
610-793-2526
Fax 610-793-1479
P.O. BOX 57 • POCOPSON, PA • 19366

You're Not Going To Pay A Lot For Used Equipment!!
Call us! We list over 260 boards, 100s of speakers, amps, PAs. We can help sell your used equipment, too!

- SSL, 6040E, "G" Computer @ \$98k
- Neve V-8, 36 in @ \$98k
- Ramsa WRS 840 @ \$18k
- Harrison MR20 52x48 @ \$108k

Call now for details & FREE catalog.
H.T.I.C.S.
(610) 865-9151
Fax: (610) 758-9999
E-mail: HTICS@aol.com

Equipment for Sale

SONIC BOOM!

The German V-Amp-Specialist!
You like tube EQs & Mic pre's?
A V72 w. high-frequency shelf is
the solution. Direct w.+4 out is
also avail. Call for details. 100%
money back + 50% of ship.! Call
(415) 642-8586
f (415) 642-8589.

AKG C-24 mic; pair AKG C-12A
mics, mint, \$3,500 firm; AMPEX
ATR-102 w/rollcart; (2) TELE-
FUNKEN V76M mic preamps;
ORTOFON, WESTREX, CAPPS,
SCULLY disk-cutting systems. All
mint condition. Call Robert (718)
698-7225.

SOUND ANCHOR SPECIALTY AUDIO STANDS

(407) 724-1237
DESIGNED FOR ULTIMATE
PERFORMANCE BEHIND
CONSOLE AND FREE SPACE
APPLICATIONS.
Standard & Custom Models
SEE OUR AD IN MARKETPLACE

SEE OUR AD IN MARKETPLACE pg. 350



America's best disc, tape &
component storage system
Stackable, portable oak units
hold all recording formats
Free mailorder brochure
(please mention Mix)
Per Madsen Design
P.O. Box 882464
San Francisco, CA 94188
(415) 822-4883

NEUTRIK TT CABLES

\$10.99 (24")
3-Yr Warranty! Qty Discounts
REAN 96 pt TT BAYS
(615) 366-5964
GREEN DOT AUDIO

ODYSSEY PRO SOUND

New & Used quality recording
equipment
* Buy, Sell & Trade *
Consoles*Tape Machines*
Mics*Outboard*Vintage*
Tube*Classic
Quality & Satisfaction
Guaranteed! Call for new
equipment quotes!
FOR CURRENT LISTING CALL:
Tel: (508)744-2001
MC Fax: (508)744-7224 VISA
E-mail odyssey@pcix.com

DATRAX

Originator in DAT Tape Storage Systems.

- DATRAX 60 Solid Oak in Natural or Black Finish
 - Nylon DAT Tape Carrying Cases
 - NEW! DAT Tape Storage Drawers 320
- NEW PLASTIC LINE: ▲ DATRAX 40 ▲ Video
8mm Rax ▲ Cassette Rax ▲ All \$21.95

Tel: 310.305.0317 ▲ Fax: 310.305.9167

CALL TOLL FREE: 800.7.DATRAX

BRYCO PRODUCTS, 8701 Falmouth Ave.,
Suite 201, Playa Del Rey, CA 90293



OCEAN AUDIO INC.

SELLING AND BUYING USED
EQUIPMENT SINCE 1982
LOTS OF RARE OLD & NEW. S. STANGE AND SOME
VERY FUNKY PRECIS. AVAILABLE

USED EQUIPMENT YOU ASK ??
NO ONE DOES IT BETTER!

WORLD'S LARGEST USED LISTINGS

(310) 459-2743 OR FAX (310) 454-4043
(303) 449-8322 OR FAX (303) 449-8558
EMAIL DAVIDHOG35@AOL.COM

Klay Anderson Audio Inc.

PRO AUDIO SALES AND SERVICES
"Good Sound is the Absence of Bad Sound"
1.800.FOR.KLAY
7054 SO. 2300 EAST • SALT LAKE CITY, UT 84121
VOICE 801.94.AUDIO • FAX 801.942.3136
HOMEPAGE: <http://www.klay.com>

Have Gear To Sell?
Mix Classifieds
(800) 544-5530

Subscription Questions?

Call
(800) 843-4086

SOUTHERN CALIFORNIA
PRO AUDIO
NEW, USED AND VINTAGE
THE LAST CALL YOU'LL HAVE
TO MAKE!

Phone: (818) 222-4522
Fax: (818) 222-2248

Recording Studio
Inventories
Bought/Sold
Liquidated

800-423-5499
Hamilton Brosious
Associates
e-mail hba@soundwave.com

Ribbon Mics

Sales, Parts & Service
The Best in the World
Matched Pairs & Stereo Bars



**Coles 4038
RCA 44s & 77s**

(800) 798-9127

Call Wes Dooley

VINTAGE NEVE™ 1272 PREAMPS



Brent Averill
ENTERPRISES

\$929.00 Single channel
\$1539.00 Two channel

14300 Hortense Street • Sherman Oaks, CA 91423
818 784-2046 FAX 818 784-0750

VINTAGE USED

CONSOLES: SSL 4048G/40 loaded, 3 yrs old, \$165k*SSL 4056E/G, call*Neve V3 w/FF, \$99k*Neve 8108, 48 fr., 36 in, Ne-cam I, \$45k*MCI JH636, \$12k*Amek Einstein w/auto, \$21k*Trident 80 56 in w/auto, \$45k. **24 TRACKS:** Studer A820, A827, A800, call*Studer A80 MkII, \$13k*Studer A80 MkIII, \$14.5k*Studer A80 Mk IV, \$16k*Otari MX80, \$14.5k*Otari MTR 90II, call*Sony JH24, \$14k*MCI JH24, \$12k*JH114, \$9,500*Studer D-827(1,000 hours) w/remote & cases, call. **MICS:** Neumann U87, 89, M49, U47, U67, call*AKG C12, 24, 414, call. **REVERBS & DELAYS:** AMS RMX 16, \$5k*AMS DMX 1580S, \$4.5k*Lexicon PCM70, \$1,350*Lexicon 300, call***COMPRESSORS:** UREI 1176/LA3/LA4, call*Teletronix LA2A, call*Neve 2254, call* **MONITORS:** Call for listings.

WE BUY NEVE/LEXICON/PULTEC/EVENTIDE/TELETRONICS/API/RCA
WE SELL VINTAGE NEVE & API MODULES
NEW EQUIPMENT IN STOCK
MAJOR CREDIT CARDS ACCEPTED



Ph: (617) 231-0095 Fax: (617) 231-0295

HUGE SELECTION OF VINTAGE EQUIPMENT

NEVE • API • SSL • TRIDENT • AKG • NEUMANN
STUDER • TELEFUNKEN • SONY

Consoles • Recorders • Microphones
Compressors • Preamps • EQ's • Effects

We specialize in precision re-diaphragming
of vintage microphones.

Let us refit your damaged or sonically
inferior mic with a brand new diaphragm.

Highest Quality • Like Original
All work guaranteed

We can redo the following diaphragms:
U47, U48, M49, SM69, UM57, U67, U87,
SM2, KM54, KM56, KM84, CMV563

& many more!

We stock: Capsules, Tubes, Connectors,
Cables, Mounts, Mic Boxes, Power Supplies
Custom Racking

Phone: (818) 992-0999

Fax: (818) 340-4331

We Buy & Trade Equipment





MUSIC VALVE ELECTRONICS

VACUUM TUBE DIRECT BOX
The legendary sound and quality construction that has travelled millions of tour miles, and made multi platinum studio albums.

Stocking vintage refurbished Neve and API consoles, modules. U-47 tube replacement for low noise, plug in installation \$175
212-343-0265

MILAM AUDIO

"THE SOURCE"

SINCE 1967

SPECIALIZING IN ALL TYPES OF RECORDING EQUIPMENT, SUPPLIES, DESIGN, INSTALLATION, AND CONSULTATION

**CONSOLES ■ D.A.T. ■ MICS
MULTI-TRACKS
MONITORS ■ AMPS**

CALL US TODAY

MILAM AUDIO

1470 Valle Vista Blvd.

Pekin, IL 61554

(309) 346-3161

ORDER HOT LINE:

800-334-8187

FAX 309-346-6431

NEW, USED, DEMO EQUIPMENT

**BEST SELECTION OF
DIGITAL/ANALOG
RECORDERS, CONSOLES,
DAWS, OUTBOARD GEAR**

Otari C1 4032, Yamaha O2R, API 1200 rack system, Dynaudio Monitors, Alesis ADAT, Tascam DA-88, Sony PCM800, Otari Radar 24TK, Pro Tools III, All Digidesign Plug-Ins, Mackie 8-Bus, Apogee AD1000, Lexicon PCM80/90, TC Elec. M5000, CD Recorders, API, GML, ADL, Summit, Focusrite, Demeter, Lucas, TL Audio, Neumann, AKG, Microtech, RØDE, B&K, Genelec, Dynaudio.

Studio and System Design, Financing, Factory Service/Installation, Experienced and Knowledgeable Sales Staff.
EAR PROFESSIONAL AUDIO
(602) 267-0600
<http://www.ear.net>

TRUE STEREO!

Rent the amazing Sound Field ST 250 stereo mic and hear what you've been missing.

(415) 742-9166

Hi-Tech Audio

SEE OUR AD IN MARKETPLACE pg. 354

WESTERN ELECTRIC
Rare Find CBS Control + Production Rooms B25, 23C Consoles, 126 Compressor. Also 20+ Tube Type Compressors. Also 50 + New Western Electric Tubes. International Shipping Available. Fax (419) 782-3299

ATR Service Company

The AMPEX Source

- ATR100 sales and complete restoration services.
- 1/2" Two Track Mixing and Mastering conversions featuring performance selected Flux Magnetics precision heads. Performance plots provided with each conversion. Recontour and wear tracking services for all heads we sell.
- Introducing HDV-2 Modular Tube Electronics for the ATR100.
- Ultra low flutter mastering grade Urethane Capstan Assemblies for ATR100 and ATR124.

Contact: Michael Spitz
Voice or Fax: 415-574-1165

AMEK EINSTEIN CONSOLE

Super E Frame—Supertrue Automation 32 positions fitted, 64 automated channels w/EQ @ mix.

Like new! Used for 1 album, a Grammy winner! Original cost \$62k; +harnesses and patchbay, \$4,500. Sacrifice for \$35k or BO!

Call Christina at Living Music.

(860) 567-8796 or

Fax (860) 567-4276.

MAJOR STUDIO SALE

Neotek Series I console 16x4x2, recording module, ATA flight case, \$2,995; TimeLine LYNX units, \$1,250 ea.; Sony VO5800 3/4" VCR, \$2,328; UREI 539 Graphic EQ (2), \$499 ea; dbx 900 Series modules, \$159; plus lots of other Class A studio gear in superb shape. For a complete listing, call (802) 862-5184 from your fax machine. Questions? Call (802) 658-1270, ext. 201.

**DAN ALEXANDER AUDIO
BUYS, SELLS AND REPAIRS
RECORDING EQUIPMENT.**

(415) 546-0200

FAX (415) 546-9411

da.audio@internetMCI.com

(3) Akai A-DAM DR-1200 Digital Recorders, Remote, DIF-1200 AES/EBU Digital Interface, DS-1200 Digital Offset Editor, (DR-1200 separately for \$2,200) (818) 889-1000.



WORLD-CLASS QUALITY—COMPETITIVE PRICING
SALES*SERVICE*INSTALLATION*CONSULTATION*LEASING

AKG AMEK/Langley API Audio-Technica Avalon Behringer Beyer B&K Brainstorm Bryston Calrec Canare Demeter Digidesign Dolby Drawmer Dynaudio Equi=Tech Eventide Fairlight Focusrite Foxtex Genelec Hafler KRK Lexicon Mackie Manley Microtech-Gefell Mogami MRL Neutrik NTI Otari Pro-Co RØDE Sonex Sony-Pro Soundfield Studio-Technologies Summit-Audio TC Electronic Time-Line TL-Audio Tube-Trap Tube-Tech Vac-Rac 4000 Yamaha O2R Z Systems and many more.

AUTHORIZED SERVICE

AMEK/Langley DDA Foxtex Mackie MCI Otari Soundcraft Tascam
9982 MONROE #407 DALLAS, TEXAS 75220

PHONE: (214) 358-0050

FAX: (214) 358-0947

UPGRADE YOUR VOCALS with Variable Acoustic Compression™

You choose 1 or 2 screens & distance between screens

User List: Westlake Audio, Sony Music, MCA Music, Masterfonics, Paisley Park, CBS, ABC, Fox Broadcast...

* 6 or 3.5 inch diameter screens \$32*

* with gooseneck & mic clamp \$54*

* washable, replaceable screens *plus

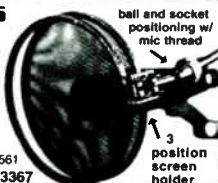
* money back guarantee shipping

PO Box 1014, New Paltz, NY 12561

call, fax or write for FREE brochure (800) 252-1503 or (914) 255-3367

VOICES

VOICE SCREENS



bell and socket positioning w/ mic thread

3 position screen holder

Editors Mixers Engineers:

A timesaving, direct approach to editing at mix time !

Experience the

JSK SDA 517 Timecode Advance / Retard:

⇒ Offset 16 timecode generators relative to a tach or timecode reference.

⇒ Offset DA88's, workstations, or other timecode sync'ed sources from the console.

⇒ An indispensable tool for film or video dubbing.

Consider the **JSK TC 1128B Timecode Machine:**

⇒ Readers: LTC / VITC / tach

⇒ Generators: LTC / VITC / tach

⇒ Serial ports: VSI (Lynx type) / BVU / Studer / RS232

⇒ Functions: generator / reader / converter / lockbox / synchronizer

Assure EDL accuracy:

⇒ Check your film work print

against video work prints.

⇒ Use the lockbox function for negative cutting.

Contact: e-mail: jsk@dtstech.com

voice: 1.310.457.4384

fax/message: 1.310.457.7586

JSK ENGINEERING / Malibu CA

Equipment for Sale

Vintage Trident A Range Console
30x16x24 Discrete. Refurbished, \$70k. Otari MTR 90 Mk2, 24-trk, great shape, EMI Redd 17 tube console (50's), 10x2 w/V72 mic pre's & 2-band EQ, \$14k. Lexicon 224XL, 4 API mic pre's, Eventide harmonizer H3000B, SV 3700 DAT, Altec 604, A-19, Urei 811. (201) 795-4876.

THE MIC SHOP

TUBE MICROPHONES
BOUGHT/SOLD/SERVICED
Mic Power Supplies & Cables
Bill Bradley (330) 723-6494
Fax: (330) 723-6595
Visa/MasterCard
<http://www.micshop.com>

Flite Case Style Speaker Cabinets
Road Cases • Custom Cabling
Professional Touring / Studio Quality
Equipment At Factory Direct Prices

KATZ AUDIO, PO Box 304,
Charlottesville, VA 22902-0304
(800) 243-3671

Tascam MS 16, 16-Track 1" format with AQ65 Autolocator, w/ Stands, calibration, tapes, manuals. Less than 100 hrs. Bought new \$13k, for personal use only. Mint, Sell \$6,800, Brian Paul. (912) 964-6391, evenings (912) 748-9619.

Studio Liquidation Sale
D&R Orion 51 frame, 32 inline modules, 12 stereo returns, TT patchbay, \$21k; K-2000 rs w/34 meg RAM, \$2,700; Audix 3A monitors, \$650; Sony DAT, \$400; Opcode Studio 5, \$450. (406) 961-4840.

AUTOMATED CONSOLE Peavey AMR 1600 with 48 channels of Megamix inboard automation. Custom rolling stand included. \$12,000 or best offer. (914) 633-5740 or Broctoon@aol.com.

TAD 1601B 15" Drivers, new \$400 ea.; Hafler DH-220 amps \$250 ea.; Case Ampex 467 1" Digital new, \$350; Ashley 3102 1/3 Octave St. Gr. EQ new, \$750; Ashley PQ-16 6-band para EQ new, \$200 ea; Studer A820/827 interface for SSL track assign mint, \$2,500; Custom Loft 24db/Oct Xovers 4-way, \$200 ea.; Rane AC-23 3-way stereo Xover, new, \$250; Westlake Audio TM-1 4-way monitors w/TAD drivers, \$4,500. (203) 221-8061.

Neve 8128 32-input, \$55k

Trident Series 24 28x24x24 36 frame w/TT bay, \$10.5k;
Yamaha PM3000-40, \$19.5k;
DDA 20 Series console 24(A&B)x8x2, \$3.9k;
Ampex ATR 124 2" 24-trk, \$21k;
ATR 124 16-trk heads Vg, \$2k;
(407) 933-2796

Soundcraft 8000 24-ch. frame w/matrix config. with 20 mic & 4 st. line inputs. Mic mod provide 4-band EQ with sweep 2 middle bands, input atten, phase rev, phan. power ch selectable, 8 aux mixes (jumper config to pre/post send). 8 gp out, 8x8 matrix, 10 st. output. H/phone/cntrl room mix. 5 yrs old used in fix local. New \$20k, used \$7,500 +ship. Contact Jim Evers at Corn Stock Theatre, PO Box 412, Peoria, IL 61651-0412. (309) 676-2196.

For Sale: MXP3000 Console channels with mic pre's, faders and several different types of EQ's. Other MXP3000 parts available as well. NO REASONABLE OFFER REFUSED. Call Chris Rich at (212) 420-6010 x284.

Looking for new/used recording, keyboard, or outboard equipment? We've got tons of super clean used, as well as new products from Tascam, Alesis, Kurzweil, Roland, Mackie, Genelec, Lexicon, Fostex, Yamaha, Korg, and hundreds more. **Discount pricing and Worldwide Delivery!** 66 years in business. Trade-ins welcome. Visit our new **22,500-sq.-ft.** location. Call, write or fax us today for price quotes and details. Also, find us on the Internet at sales@caruso.net. Start saving money today! Call **Caruso Music**, 94 State St., New London, CT 06320 USA. (203) 442-9600. (203) 442-0463/fax.

VINTAGE TUBE MICS

from
RUSSIA

AKG, Telefunken
Neumann, LOMO, etc.

Tel 011- (7-095) 299-8808
Fax 011- (7-095) 299-1161

SONY MXP-3036

Fully loaded console with 36 I/Os, 30 with 4-band parametric EQs and 6 with discrete 10-band graphic EQs. Options include Sony disk-based fader, mute and group automation, 8 wild faders, communication package, 12 VU meters and full TT patchbay with 200 tielines. I have spares and harnesses, \$40k. Also will sell as a package with Otari MX80 and 24-channel Dolby A rack for \$60k or BO. (508) 281-2799.

MARQUETTE AUDIO LABS
RECORDING EQUIPMENT
A-72-A-76, NEVE, AUDIX, LANGVIN,
MICS, PREAMPS, COMPLATRS + MORE
CUSTOM RACKING OF VINTAGE GEAR
phone/fax (510) 264-1144 10 to 10 pm



PRECISION AUDIOTECHNICS
CORP

- IN-EAR MONITORING
- HEARING PROTECTION

1-800-711-7317
<http://precisionweb.com>

WE BUY, SELL AND TRADE
VINTAGE EQUIPMENT.

"this is not a problem"

(508) 543-0069 TEL
(508) 543-9670 FAX

<http://www.mercenary.com>

The Studio POP Filter

A Great Improvement on a good Idea!



Open up the sound of your vocals and voice overs without annoying "POPS" ruining your best take!

Only \$24.00
with optional clamp and Gooseneck \$44.00
plus shipping
ONE YEAR GUARANTEE

AUDIO VISUAL ASSISTANCE
585 SHERWOOD ROAD, SHERBORNE, ONT. L4N 5Y7
PHONE/FAX 416 481 9715

AUDIO WORLD INC.

New, Used & Vintage
MICS, PREAMPS
COMPRESSORS
CONSOLES,
RECORDERS
& MORE!

NEVE
NEUMANN
TELEFUNKEN
LEXICON, SSL, STUDER,
ADL & Much More!

Now In Stock: ADL 200G DI

We Buy Gear
We Rack Modules
Call or Fax

Sales: (818) 884-8400 or (310) 275-4277
Fax: (818) 340-4331

"The Best Gear On Earth"

Professional Audio Design Inc.

Premier Dealers for:

AKG • ADL • API
Aphex • Audiomate
Avalon • Beyer
Bruel & Kjaer • BSS
Calrec • Chord
Electronics • Coles
Daking • dbx • DDA
Drawmer • Dynacord
Dynaudio Acoustics
E-Mu • Eventide
Focusrite • Fostex
GML • Groove Tubes
Hafler • KRK • K/T
Lexicon • Mackie
Manley • Microtech
Gefell • Milab • Neotek
Otari • Queded
Rode • Sennheiser
Soundcraft • Shp
Shure • Soundtracs
Tannoy • TC Electronic
Tascam • Timeline
T L Audio • Trident
Tube Tech • Uptown
Vac Rac • White

NEW, USED AND VINTAGE EQUIPMENT SALES

- REPAIR, REFURBISHING AND MAINTENANCE
- NEVE CONSOLE RESTORATION SPECIALISTS
- WIRING & CABLING SYSTEMS, STUDIO INSTALLATION
- MICROPHONE REPAIR AND RESTORATION SERVICE
- CUSTOM RACK SYSTEMS FOR VINTAGE MODULES

EQUIPMENT SPECIALS

API 550B \$1049 • API 32x24 \$65k • Neve V-III 48FF \$150k • Neve 8108 \$75k • Neve VR60 FF \$285k • SSL 4080G/ULT \$350k • SSL 4056G \$185k • AMEK MOZART RN56VD \$125k • Sony MXP3036 \$38k • Trident 80B 30x24 w/EQ \$35k • NEOTEK ELAN 40-CHL \$23k • NEOTEK ELITE 40-CHL \$56k • SOUNDRAFT DC2020 CALL • Tube-Tech LCA-2B CALL • MANLEY VARI-MU CALL • TC ELECTRONIC M2000 \$1600 • SOUNSCAPE WORKSTATIONS • DYNAUDIO ACOUSTICS BM15 \$1495 • MACKIE 32-8 - IN STOCK • UREI LA-4 \$1600 PR. • UREI LA-3A \$2400 PR. UREI 1176, 1178 CALL • E-Mu SP1200 \$1750 NEW • RODE NT2 \$659 SHEP/NEVE 1073 \$2K • NEVE 1073 \$2800 • AKG C12 VR \$3500 • AKG C12 77k • NEUMANN U47, U48, M49, U87, KM54, KM56-CALL • AMS RMX16 \$4.5k • EVENTIDE H3000DSE \$2500 • LEX PCM60, PCM70, PCM80, PCM90 PCMA2, 480L-CALL • TELEFUNKEN V72 RACK SYSTEMS FROM \$2k • CALL FOR UPDATED STOCK LIST OR TO LIST YOUR GEAR 4 SALE

dynaudio acoustics®



Specialists in high end active and passive monitoring systems for recording studios, post-production surround & mastering. The ultimate in high resolution low distortion monitoring systems.

see us online at www.Proudiodesign.com

Professional Audio Design, Inc.
tel 617 982-2600 fax 617 982-2610
357 Liberty St. Rockland, MA 02370

Adams-Smith Zeta 3/em, Zeta 3, Zeta remote, cables, \$4k; Studer B67 2-tk in Studer rolling cabi-net, excilt cond., \$2k; Sony VO5850 3/4" video deck, \$2k; Sony BVU820 3/4" video deck w/DT, \$1k; DPS 170 TBC, \$1k; Q-LOCK 310 w/(2) A800, bvu800, unifilm, spares, cables BO; 3M M79-16 power supply & mda card, BO; (3) Seagate ST42400N (SSL6hr drives), \$1.5k ea. Underground Sound. (718) 821-1427.

Soundcraft 3200 recording and mixing console, 56 input channels with Uptown Automation just like Flying Faders, mint condition, \$50,000, very negotiable. John, Ken or Michelle, (516) 829-3939.

Soundcraft SM12 40x14

Monitor Console 1 year old, excellent condition, new 1/2 ATA roadcase with doghouse, 2 PSU's. (404) 355-7943. Jay Rabbitt, or Stu Hirsch, In Concert Productions Inc. Atlanta.

Telefunken V72, 76, 77, 78, U73, Telefunken Tubes UF14, EF14, EF804S, AC 701. Neumann mics, many more; for actual list, call Christian (212) 674-5712 or Akzent Audiotechnik. Germany. 0049-(0)721-373622. Fax 373611.

SOUND PRODUCTIONS
Dallas, Texas

We Sell the **MAJOR BRANDS** of **NEW & USED SOUND EQUIPMENT** as Used by **TOURING SOUND COMPANIES** and **LIVE MUSIC VENUES**

We Have **WHAT YOU WANT** at **DISCOUNT PRICES**

Our **SALES ENGINEERS** are **EXPERIENCED SOUNDMEN** and can **RELATE TO YOUR NEEDS**

If you are a **SOUNDMAN**, get on our **MAILING LIST** for your **SPECIAL DEALS**

Call Today and Find Out Why We Are #1 In Sound System Sales



800-203-5611
(214) 351-5373 • Fax 214/351-8782
Web Page: <http://www.soundpro.com>
E-mail: sndprod@aol.com
THE SOUNDMAN'S CONNECTION SINCE 1973

IN STOCK! NEUMANN U47, U47 fet, U48, M49, SM69, tube/fet, M269, SM2, U64, KM53/54/254/56, AKG C12, C12a, C24, 422, COLES 4038, SONY C37a, NEVE 24x6 broadcast, 16x2 Kelso, 12x2 Melbourne, 8x2 CL. A, Neve 1066/1079/31105/33114/33115/1271/1279, BEATLE tube boards: 12x2/8x2/6x1, V72, V76, V76m, V73 comp, \$1.8k/pr; dbx 160, ADR 769 Compex, ALAN SMART SSL-type comp/new, CALREC pq14/pq15/1161/am6-17 comp, AUDIX 35102/am6-17 comp, MASSENBURG 8200, DIM-D, DOLBY A 16 ch, SSL dual G EQ/Pre, STUDER A800/827, TRIDENT 80B/SSL 4048, New NEVE/SHEP gear. BUY-SELL-TRADE!

VINTAGE KING (313) 965-0645p (313) 964-3338f.
E-mail rustbelt@ix.netcom.com

Crown Amps: MA 5000, \$2,200; MA 2400, \$1,349; MA 1200, \$1k; & MA 24x6 w/x-over, \$1,200. Phone (206) 932-9591. 32 input CAD Recording Console w/96 point Patch Bay, \$32k new—Must sell \$11,500. Phone (206) 882-7769.

96-pt, TT-BALANCED PATCHBAYS. Switchcraft D1634B. Not the cheaper imitations. For a limited time, available at AVR for \$239 (cash price only). Quantity pricing upon request. Call (617) 924-0660 or (860) 289-9475.

DIGITAL
dispatch

PRO AUDIO RENTALS

OFFERING THE FINEST IN STATE OF THE ART AND VINTAGE RECORDING EQUIPMENT
CALL US, TOLL FREE (800) 446-3278

WEB SITE, <http://www.digitaldispatch.com/dd>

PATCHBAYS VACUUM TUBES

ARS Electronic Distributors
tel: 818-997-6279 Since 1947 fax: 818-997-6158

GET SMART!



The **New Alan Smart Stereo Compressor**
Now available in the U.S. exclusively from:
Sunset Sound, Hollywood (213) 469-1186
• Sales (800) 446-7677 •

Equipment Rentals



SOUNDTRONICS WIRELESS

YOUR WEST COAST ALTERNATIVE
SPECIALIZING IN
WIRELESS MICROPHONE RENTAL
ON-LOCATION TECHNICAL SERVICES
CONSULTING & SALES

200 N. Orchard Drive • Burbank, CA 91506
818/848-8670 • 800/869-6801

Check Out Mix Online
<http://www.mixmag.com>

AVR

AUDIO VIDEO RECORDING SYSTEMS
Your source for Professional Audio and Video equipment new and used.

USED GEAR

HUNDREDS OF QUALITY USED AUDIO, VIDEO AND MUSICAL PRODUCTS AVAILABLE

WE BUY, TRADE AND LIST YOUR ITEMS FOR FREE

OVER 100 LINES OF "NEW" PRODUCTS

BOSTON (617) 924-0660 HARTFORD (860) 289-9475

372 MAIN. ST. WATERTOWN, MA 02172
TEL (617) 924-0660 FAX (617) 924-0497
CONNECTICUT (860) 289-9475 FAX (860) 291-9760



CLASSIC EQUIPMENT RENTALS

The largest collection of NEW & VINTAGE Pro Audio Gear!

Featuring:
Tube mics
Tube limiters
NEVE/API modules
Vintage outboard gear

Also in stock:
Apogee 20-bit converters,
Tube Tech CL1b/LCA2b limiters
Sony PCM 3348
Tascam DA-88 8-ch digital rcdr
Sony PCM-800 8-ch-digital
Timecode DAT recorders
Sony 9850 3/4" deck
Pro Tools III
Genelec 1031a monitors

CALL (213) 467-3432

Equipment Wanted

MERCENARY AUDIO WANTS TO BUY YOUR:

NEVE-SSL-TRIDENT-AMEK
UREI-TELETRONIX-FAIRCHILD
PULTEC-LANG-LEXICON
UNIVERSAL AUDIO-NEUMANN
AKG-TELEFUNKEN-AMS
ANYTHING THAT IS OF EXCEPTIONAL AUDIO QUALITY!

"this is not a problem"
(508) 543-0069 TEL
(508) 543-9670 FAX
<http://www.mercenary.com>

Mix Classified

To Sell Your Gear(800) 544-5530